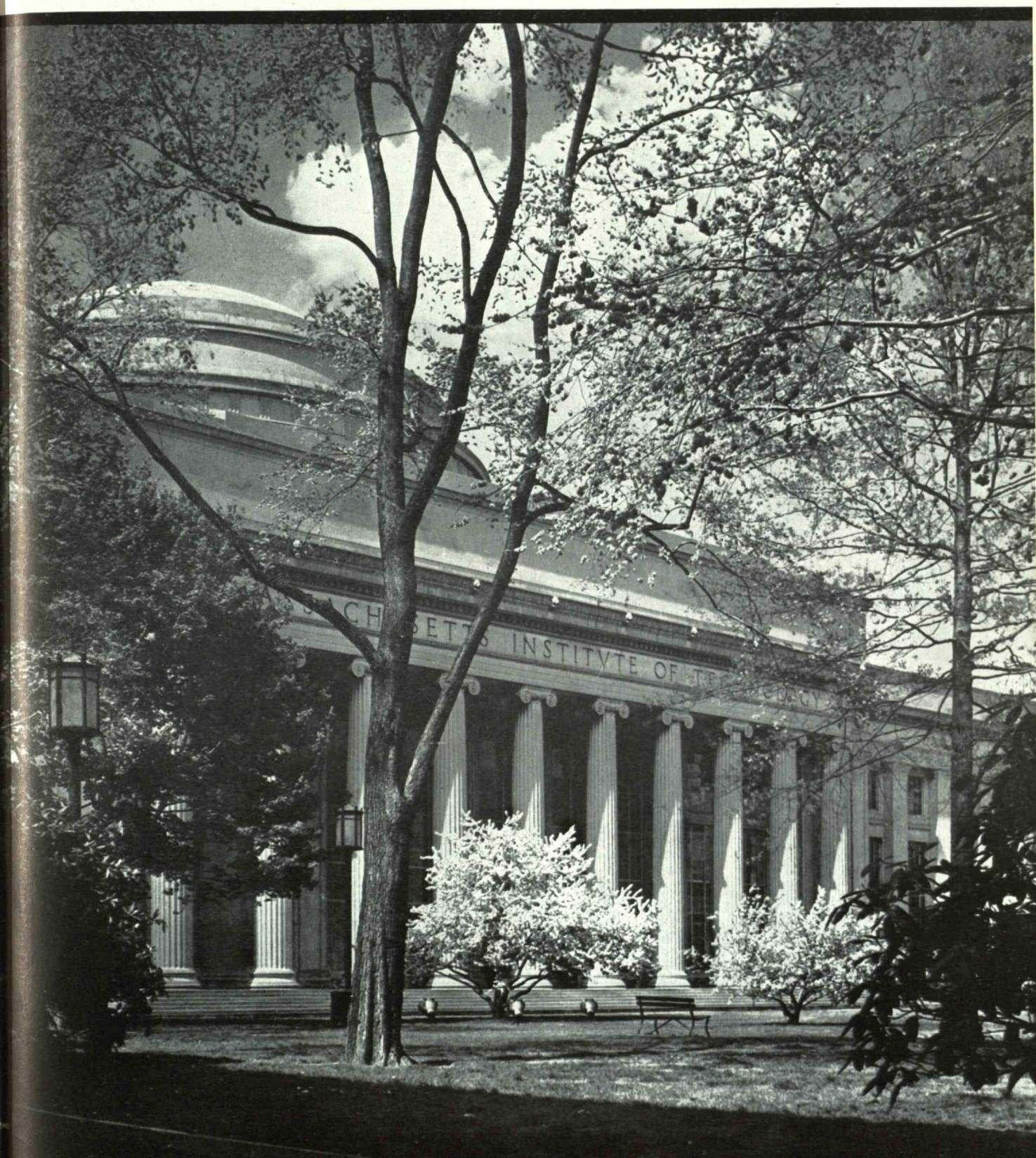
TECHNOLOGY REVIEW

July 1951



technology
review
Published by MIT

DISTILLATION

processes and equipment for ...

. . . the separation of hydrocarbons or other organic chemicals, should be designed for efficiency in terms of overall operating costs and amortization of capital investment. Tray efficiency, cleaning facility and resistance to corrosion are the prinicipal factors to be considered. For practical purposes, tray efficiency or tray spacing may be reduced to keep tower cost at a minimum. A balance of utility costs against chemical recovery may indicate the desirability of sacrificing some of the recoverable material, with a corresponding reduction in the capital outlay for columns and associated calandrias, condensers and heat exchangers. Particularly when potential changes in process or product specifications are foreseen, distillation columns with sectional shells and removable trays of light alloy construction offer special opportunities for economy because of the ease of transfer from tower to tower as well as cleanability and resistance to corrosion.

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THE TECHNOLOGY REVIEW, July, 1951. Vol. LIII, No. 9. Published monthly from November to July inclusive at Emmett Street, Bristol, Conn. Publication date: twenty-seventh of the month preceding date of issue. Annual subscription $3.50; Canadian and Foreign subscription, $4.00. Entered as second-class matter December 23, 1949, at the Post Office at Bristol, Conn., under the Act of March 3, 1879.

IN PEACE OR WAR

CARBON BLACK FOR DEFENSE

Carbon black triples the usefulness of any rubber product that must stand up to the terrific pounding and abrasion that is the normal life of a tire and most other rubber products used in modern warfare. In fact, you cannot build a modern truck, tank, gun carriage, airplane or even a battleship without rubber reinforced with carbon black.

There is no adequate substitute for carbon black and that's why in 1945, it was Number One on the list of Critical War Material Shortages. Since it is essential to the conduct of war, it is equally important to defense.

Military men alone know how vital is the dependability of a product to the lives of numbers of men. That's why Cabot Carbon Blacks are preferred to all others. Manufactured to rigid, high standards, they are guaranteed to give the same, quality performance, time after time.

Weapons of defense or war—whatever the circumstance or purpose—give the best possible length and kind of service, when rubber is reinforced with a Cabot Carbon Black.

GODFREY L. CABOT, INC.

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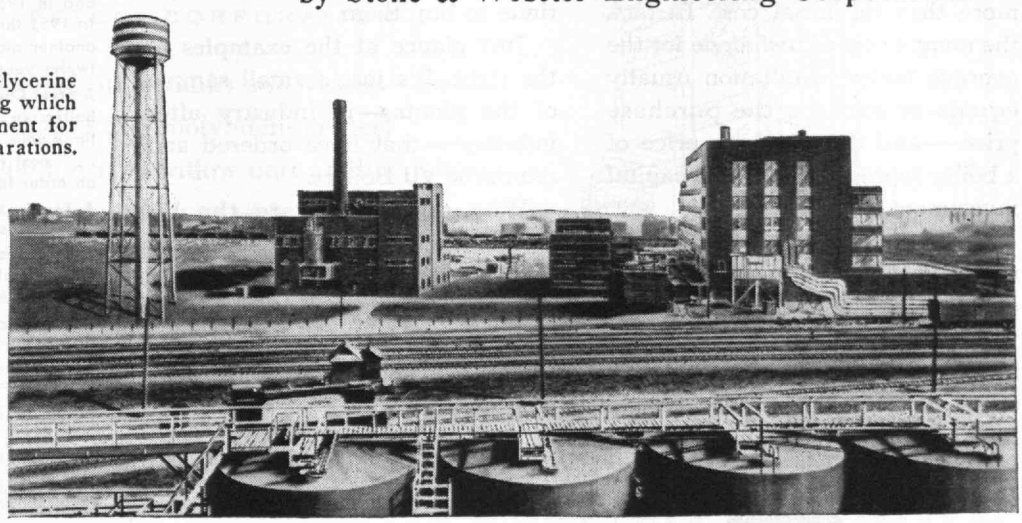
Finishing Building with Boiler Plant in left background

FROM REPORTS . . . *to Producing Plant*

For Lever Brothers Limited, Stone & Webster Engineering Corporation prepared a series of reports covering alternative plans for consolidation and expansion of the company's manufacturing facilities in Toronto.

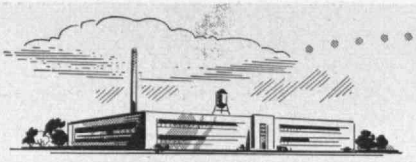
The resulting new plant facilities, selected to achieve more efficient and economical operation, were designed and constructed by Stone & Webster Engineering Corporation.

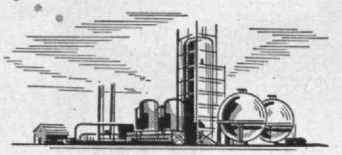
Left to right, Boiler Plant, Glycerine Refinery and Finishing Building which includes manufacturing equipment for soap products and toilet preparations.

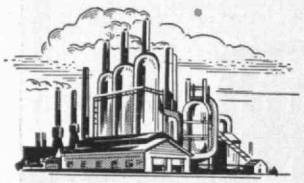


STONE & WEBSTER ENGINEERING CORPORATION

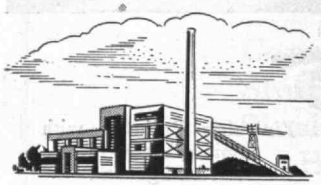
A SUBSIDIARY of STONE & WEBSTER, INC.

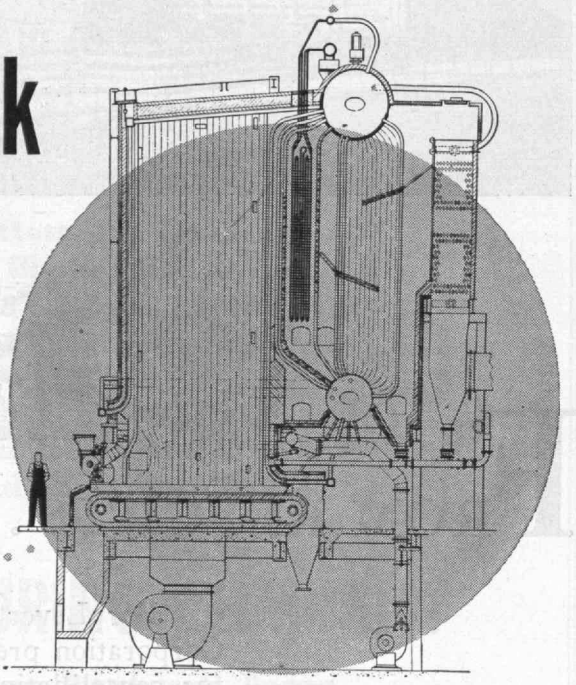


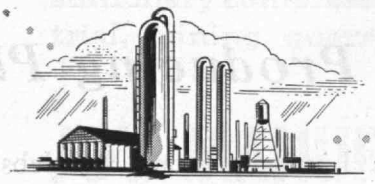




They keep coming back for more







One thing that distinguishes a boiler from most other types of equipment is that its *annual* operating cost is more than its initial cost. In fact, the annual cost of *fuel alone* for the average boiler installation usually *equals* or *exceeds* the purchase price — and the purchase price of a boiler represents a sizable capital investment.

With fuel costing what it does today, it is more important than ever before to select a boiler that will assure the most efficient performance possible. That is why it is especially significant that people who have bought C-E Vertical Unit Boilers — and know these boilers *through their own experience*—continue to buy them.

Just glance at the examples at the right. It's just a small sample of the plants — in industry after industry — that have ordered and *reordered* **VU** Boilers.

Why not investigate the **VU** Boiler for *your* next installation. Our recommendations as to the most suitable type of **VU** Unit for your particular requirements are available to you or your consultants without obligation.

A Chemical Company ordered two VU Boilers in 1939. In 1946 five more were ordered for three of their other plants. In 1949 two more were ordered for one of these same plants, and in 1950 two more units for a fifth plant. In 1951 three more units were ordered for still another plant — thirteen units for six plants in twelve years!

A Steel Company now has a total of eleven VU Boilers in four different plants. Starting with three units in 1936, it has reordered three times . . . most recently in the fall of last year with an order for three more units.

A Textile Manufacturer ordered two VU Units in 1936. Another unit was installed in 1940 and a third in 1944. Still another textile company installed one unit in 1945, a second in 1949 and has just ordered another.

An Electric Utility Company installed its first VU Unit in 1941. Two more units were ordered for another plant in 1947, a unit for a third plant in 1946 and still another for a fourth station in 1949.

A Refining Company ordered one VU Unit in 1937, another in 1940 and another in 1949 for one of its plants; also two in 1942 and one in 1947 for another plant. B-486

ALL TYPES OF STEAM GENERATING, FUEL BURNING AND RELATED EQUIPMENT

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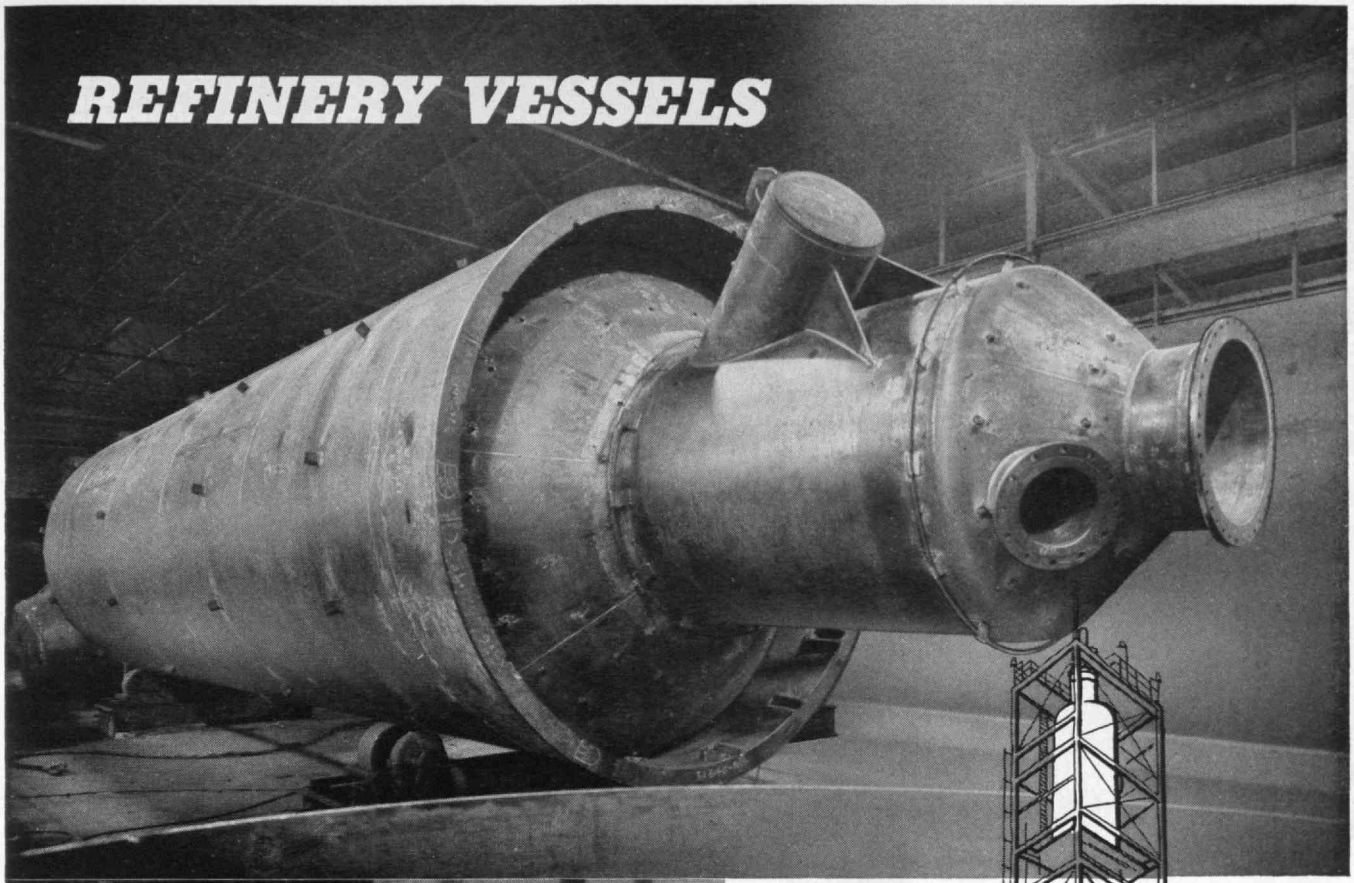
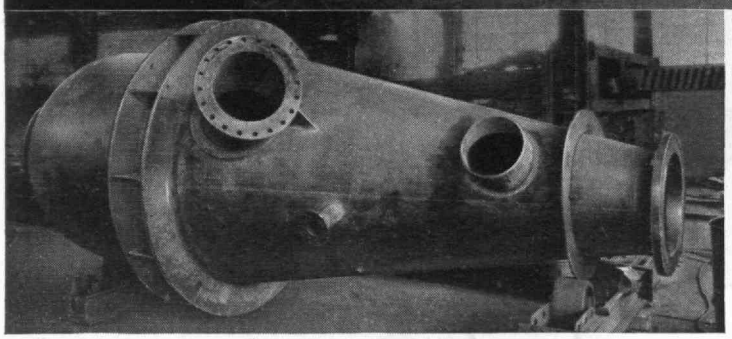
REFINERY VESSELS





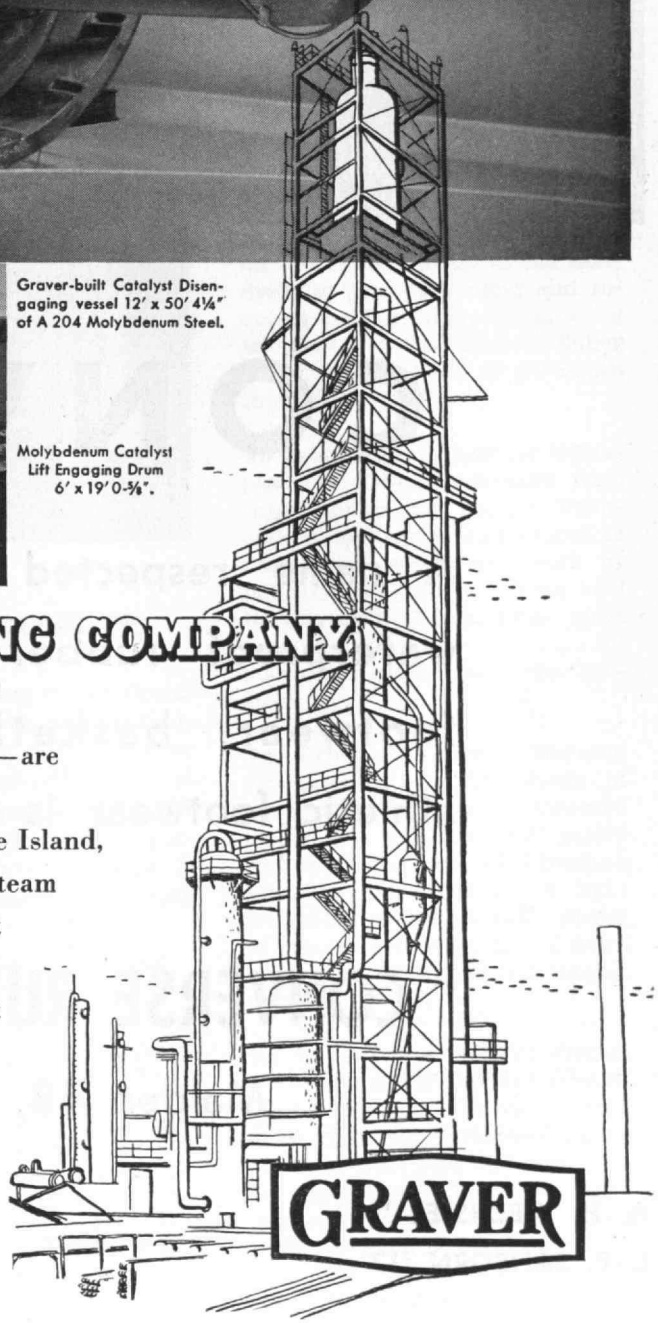
Graver-built Catalyst Disengaging vessel 12′ x 50′ 4¼″ of A 204 Molybdenum Steel.

Molybdenum Catalyst Lift Engaging Drum 6′ x 19′ 0-⅝″.

for GREAT LAKES REFINING COMPANY

DIVISION OF PETCO CORPORATION

Fabricated by Graver—among other tanks and vessels—are two refinery vessels of ASTM A 204 molybdenum steel for Great Lakes' new 6,000 b/d Houdriflow unit at Blue Island, Illinois. Since Graver's vessels function as part of the steam catalyst lift, the special steel provides great strength at the high temperatures required by the process. These fabrications are typical of the unusual skills that Graver possesses in stainless, alloys and clads, both in its shop work and in field erections.



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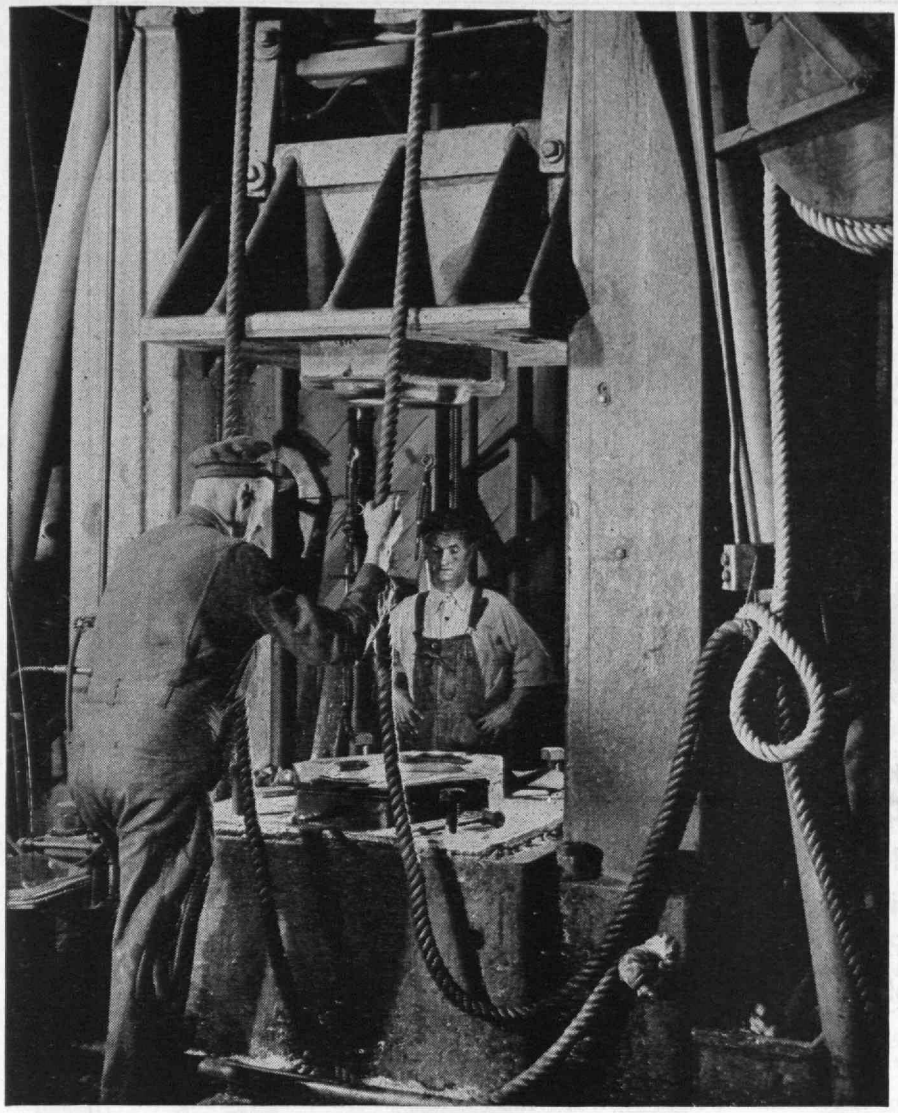

IT TAKES ROPE TO BUILD A BOMBER

Plymouth rope and drop hammers like this are an indispensable work team in many defense plants. Together they stamp out thousands of vital sheet metal parts for aircraft and other military equipment.

To give metal fabricators a more dependable and safer control rope, Plymouth developed a special type of SHIP BRAND Manila that works smoothly and efficiently, hour after hour without burning on the drum.

Plymouth research, engineering, and manufacturing skills together have successfully solved special and standard cordage problems for 127 years. If rope or twine is an important cost item in *your* business, it will pay you to consult a Plymouth representative.

PLYMOUTH CORDAGE COMPANY
377 Court Street, Plymouth, Mass.

PLYMOUTH
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Send for 16-page booklet, "The Plymouth Story" —an illustrated description of what it takes to make good rope and why Plymouth costs less to use.

ROPE AND TWINE FOR MARINE AND INDUSTRIAL USE

It Takes Rope, Too . . .

To Catch A Cake of Soap . . . Plymouth-made Nylon Foregoers—stronger yet lighter and longer harpoon lines—are favored by whalers in spearing Moby Dick, source of oil for soaps and lubricants, for fertilizer, kennel foods, vitamins.

To Make A Telephone Connection . . . Linemen and Plymouth Rope are an inseparable team in installing and maintaining overhead wires to carry your voice . . . to light your lamps, make your toast, operate your television set. Plymouth developed "Storm-line," a specially treated rope that linemen can trust longer whether it is in use or idle.

To Run the Greatest Show on Earth . . . From Madison Square Garden to the smallest small-town lot, the circus couldn't go on without rope. From the man on the flying trapeze to the hundreds of jobs of hauling and securing the Big Top itself, Ringling Brothers and Barnum and Bailey alone use 70 miles of Plymouth Rope each year.

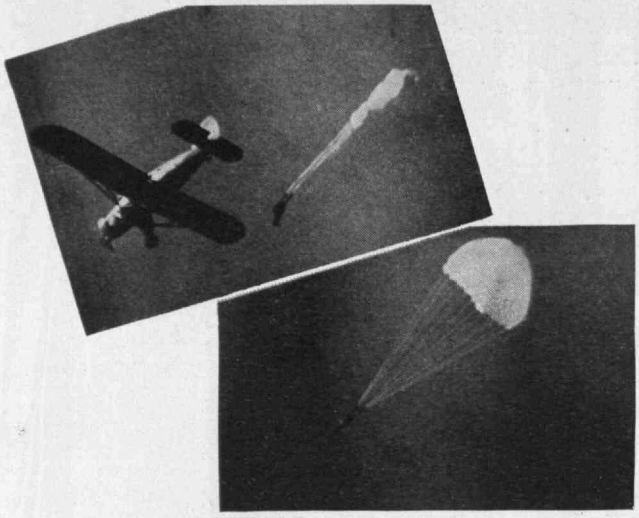
To Provide Your Toast for Breakfast . . . Grain is scooped from ship holds by huge shovels. Plymouth Shovel Lines are attached to these giant scoops and work by pulleys back and forth from hold to elevators. These lines move tons of grain every year . . . for your cereal, bread, fodder for livestock.

To Bring You Your Morning Newspaper . . . Wet sheets of paper traveling over steamheated drums are sped on their merry way with the help of Plymouth Sheehan Carrier Rope. A light transmission rope, it takes plenty of punishment on its up and down route over continual and intense heat.

To Make You a Suit of Clothes . . . Rope is an obedient servant in textile mills. Mule spinner drive rope, rim banding, spindle banding, knife rope and loom rope are typical jobs Plymouth Rope performs in woolen and cotton mills. Plymouth-developed textile mill ropes were engineered to meet the hard wearing requirements of mills.

ELASTIC SHOCK and EXERCISER CORDS

We supply the aircraft industry with Elastic Shock Cord and Elastic Exerciser Cord produced in various sizes to meet the military specifications of the U.S government.



ELASTIC SHROUD LINES

Developed by Robert Taylor Dawes (M.I.T. 1926), this elastic shroud line quickly takes up the shock of the opening parachute, even though the paratrooper bails out from a plane going at high speed. Landing shock and oscillation are markedly reduced, and a 'chute shrouded with these elastic lines spills its air automatically, minimizing the drag along the ground. It affords fliers greater safety in emergency jumps, and increases their efficiency

DAWHIDE BETTER-THAN-RAWHIDE LACES

Dawhide "better-than-rawhide" Laces are tough, long-wearing, non-slipping, fabric laces that have been chemically treated and scientifically impregnated to become water-resistant and non-freezing. Dawhide Laces are ideal for active sport and rugged work shoes, and were used on the Byrd Expeditions to the Antarctic for lacing boots and lash ropes for pack sleds, tents, etc. Dawhide Laces were invented by and named for Robert Taylor Dawes, M.I.T., 1926

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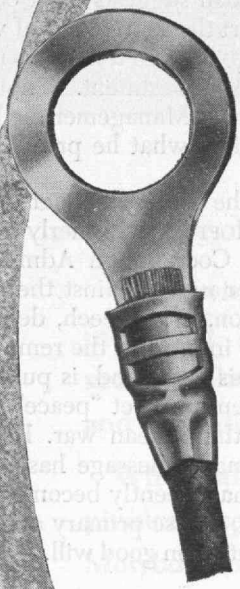

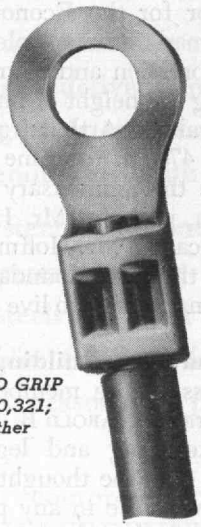

IT'S ALREADY INSULATED!
AMP PRE-INSULATED DIAMOND GRIP TERMINAL U.S. Patent Nos. 2,410,321; 2,379,567; 2,205,111; 2,468,169; other U.S. patents pending*

FOR SOLID WIRE!
AMP SOLISTRAND TERMINAL*
U.S. patents pending

First with new ideas and new uses for solderless terminals! AMP solderless pins, plugs, hooks, contacts and specially shaped terminals do more than give sound electrical contact—they can be incorporated into the design of the product itself. Result is faster production with less material—and at lower cost.

With wire termination it's installed cost that counts. Fast, efficient AMP automatic machines make production runs of 2,000 to 4,000 complete terminations per hour! Terminals feed in strip form from spools. Each connection is strong, neat, uniform.

AMP's superior design, production, and performance tolerances have yielded approval for critical applications by U.S. Army, Navy, Air Force, and various civilian agencies. List on request.

U. A. Whitaker '23

F. H. Wells '18

J. R. Vickery '35

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THE TABULAR VIEW

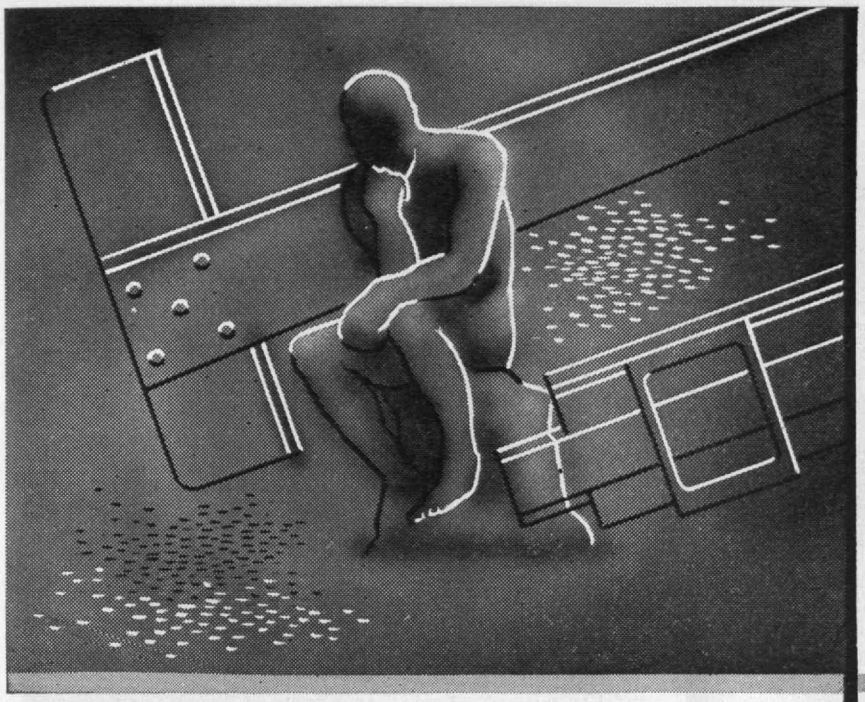
Fundamental Knowledge. — In the future, the nation will need to build technological progress on the foundations of two strong pillars, in the opinion of ALFRED P. SLOAN, JR., '95, chairman of the board of the General Motors Corporation. Mr. Sloan believes (page 469) that one of these requirements is the development of fundamental knowledge, in the social as well as the natural sciences, by educational institutions free from undue financial stress and governmental domination. The second requirement is the development of technically trained personnel to assume positions of enlightened leadership in the management of industry. As a means of implementing such a program of mutual co-operation between education and industry, Mr. Sloan suggests "that corporate enterprise should support the sources out of which flow fundamental knowledge, and do it in its own self-interest as a sound business investment." The Institute's new School of Industrial Management is living proof that Mr. Sloan practices what he preaches.

Need for Unity. — At the Victory Dinner in New York on May 3, PAUL G. HOFFMAN, formerly administrator for the Economic Cooperation Administration, made a strong plea for unity against the forces of oppression and aggression. The speech, delivered during the height of public interest in the removal of General MacArthur from his command, is published (page 473) at the time when a Soviet "peace" feeler marks the anniversary of the Korean war. For this reason, perhaps, Mr. Hoffman's message has double significance. Mr. Hoffman has recently become director of the Ford Foundation, whose primary objective is to enable men to live together in good will.

Character Building. — In his commencement address before members of the Class of 1951, the Honorable HAROLD R. MEDINA draws upon his extensive teaching and legal experience to emphasize (page 476) the thought that "the qualities which are most valuable in any profession are the ones which cannot be bought at any price." Well known in the legal profession as an able lawyer, teacher, and author, he was appointed judge of the United States District Court, Southern District of New York by President Truman. Judge Medina won international acclaim for his patience and impartiality while presiding over the trial of 11 Communists charged with conspiracy to teach overthrow of the United States Government by force and violence. He has recently been named by President Truman to succeed Learned Hand in the United States Court of Appeals for the Second Circuit.

Tradition and Progress. — In delivering the baccalaureate address to the graduating class, the Reverend SIDNEY LOVETT, chaplain of Yale University, makes ample recognition of man's achievements in technology. Yet, Dr. Lovett reminds us (page 479) that even the greatest of progress in the physical sci-

(*Concluded on page 450*)



Thinking of improving

"Improving" any machine really means increasing its productive capacity. That means tinkering with speeds and weights and strength—ending up with alloy steels.

Which alloy steel?—the one that meets physical requirements at the lowest cost. Molybdenum steels fill that bill. Good hardenability, plus freedom from temper brittleness, plus reasonable price enable them to do it.

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C2

THE TABULAR VIEW

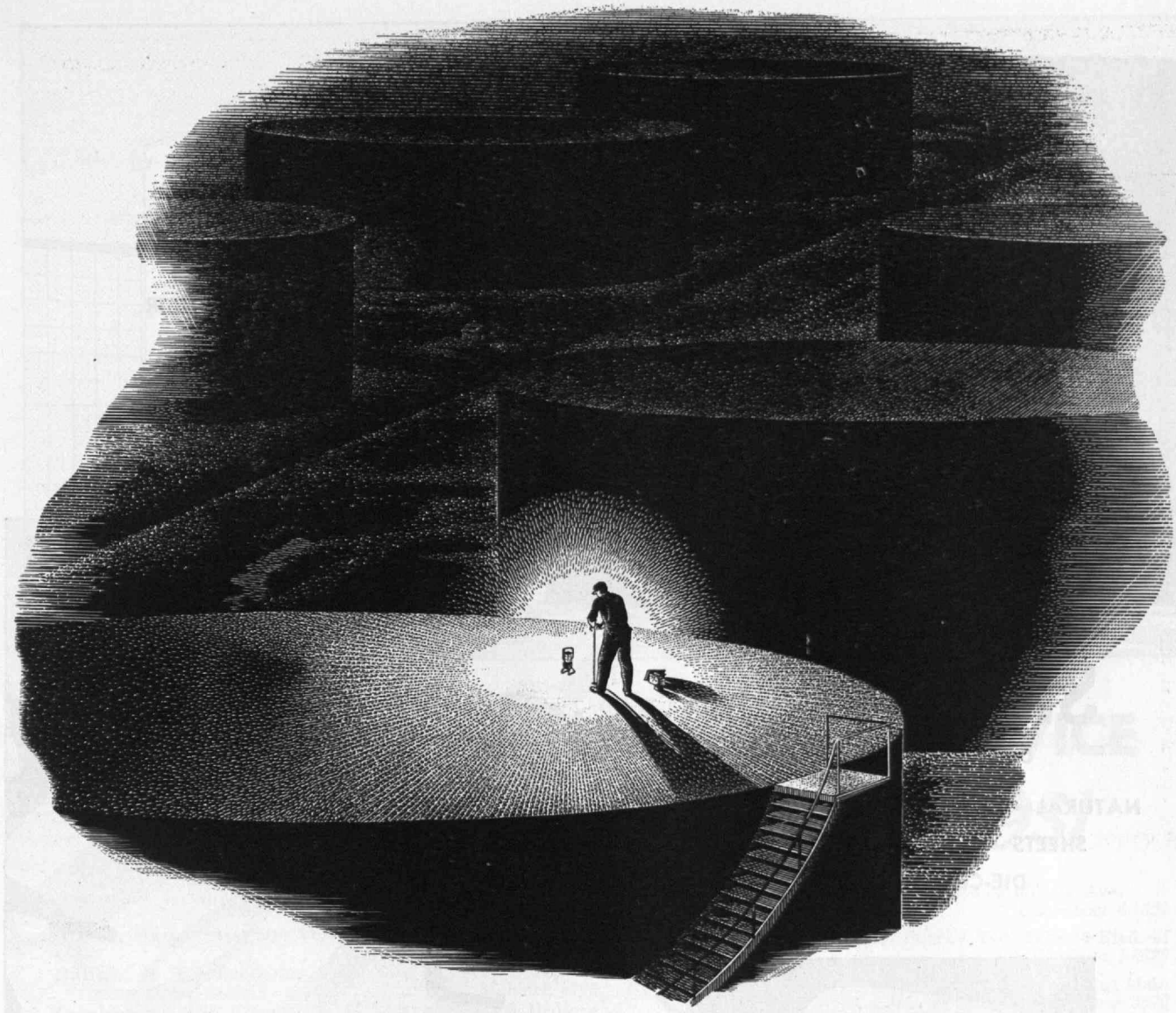
(*Concluded from page 448*)

ences has little meaning "if we cannot tell the difference between right and wrong in terms of our personal conduct." Dr. Lovett is no stranger to Technology groups, having been pastor of the Mount Vernon Church, directly across the Charles River from M.I.T., between 1919 and 1932. He has been chaplain at Yale University since 1932.

Today's Graduates. — In his farewell address to the Class of 1951, Technology's President, JAMES R. KILLIAN, JR., reminds this year's 1,178 graduates (page 481) that the nation "desperately needs engineers and scientists who not only can increase our standard of living but also can increase our standard of living together; men who have the courage and understanding to tackle the overriding human problems of today." In the celebrations which commencement day, 1951, occasions, President Killian, as a member of the Class of 1926, also celebrates the 25th reunion of his own graduation from the Institute. Moreover, his own activities exemplify the service in the humanities and the social sciences which he calls for from those who have completed their studies.

Alumni Day. — For those who were unable to attend Alumni Day, 1951, and for those who would relive their reunion in Cambridge from the printed word, an account of all events (except the semi-private reunions of individual classes) appears on page 483.

The Review is not published during the summer months following July. This issue, therefore, concludes Volume 53. Number 1 of Volume 54 will be published on October 26 and dated November. Readers who bind their copies are reminded that if they possess nine issues of Volume 53, their files are complete. An index to the volume will be ready on September 14 and will be supplied post free upon request.



Now...tracking down hidden temperatures is simply a push-button operation

You'd hardly think a little thing like expansion could be so troublesome and costly in stored petroleum products. Yet temperature changes cause a change in volume that can amount to thousands of gallons annually, even in one tank.

When oil is sold from one of these tanks its average temperature must be known in order to compute the true amount. But accepted methods of checking temperatures leave much to be desired. Even in heated tanks, temperatures are far from uniform. The oil is cold below the coils, hot around and immediately above, progressively cooler near the top. To obtain an average, a gauger had to climb the tank in all kinds of weather, and spend up to an hour taking dip-cup thermometer readings at many levels.

Even with great care, this method could introduce errors in volumetric calculations amounting to hundreds of barrels per tank. Needed: an instrument to instantly indicate true, average temperature throughout the liquid.

Representatives of a large oil company brought this problem to Weston engineers. In answer, they developed a special resistance thermometer, with temperature-sensing elements extending down through the oil. Now Weston meters mounted outside the tanks give accurate, *average* temperatures at the push of a button.

The same direct thinking and sound engineering that tracked down these hidden losses are available at Weston to help solve measuring, recording or controlling problems whether involving electricity, light, pressure or temperature. Weston Electrical Instrument Corporation, 635 Frelinghuysen Avenue, Newark 5, N. J., manufacturers of Weston and TAGliabue instruments.

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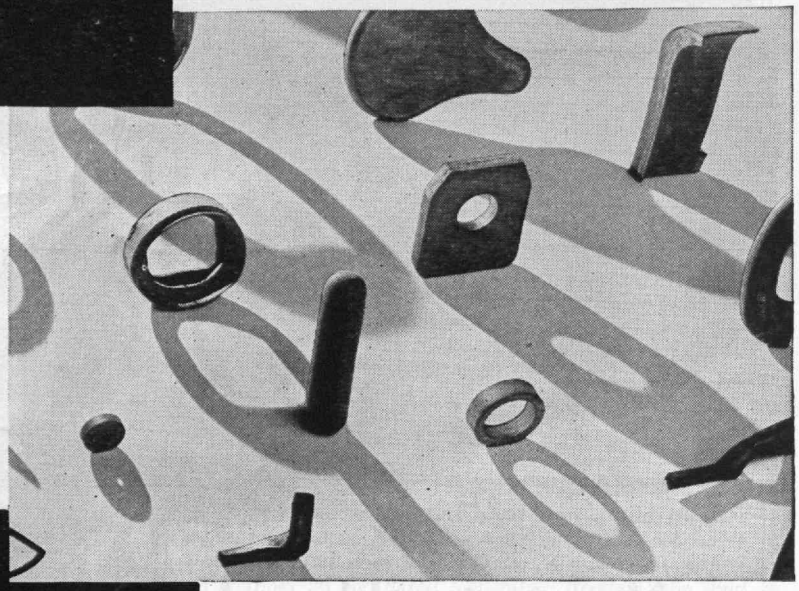

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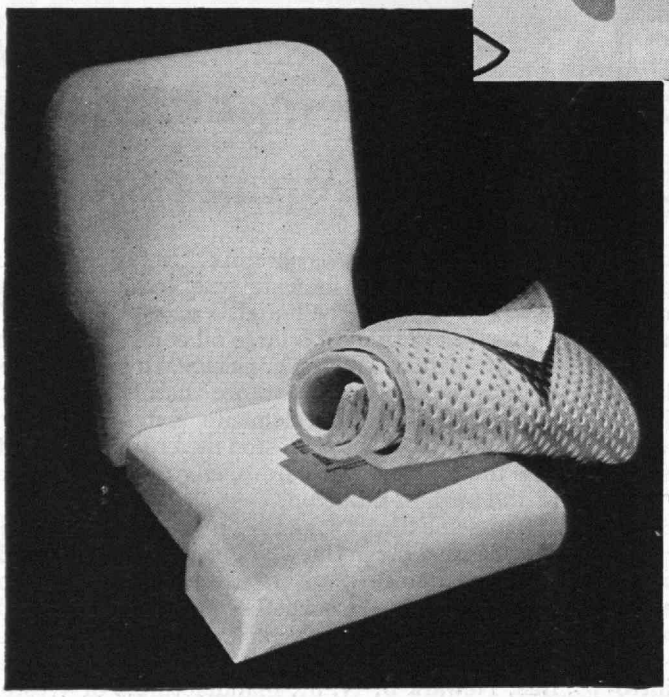

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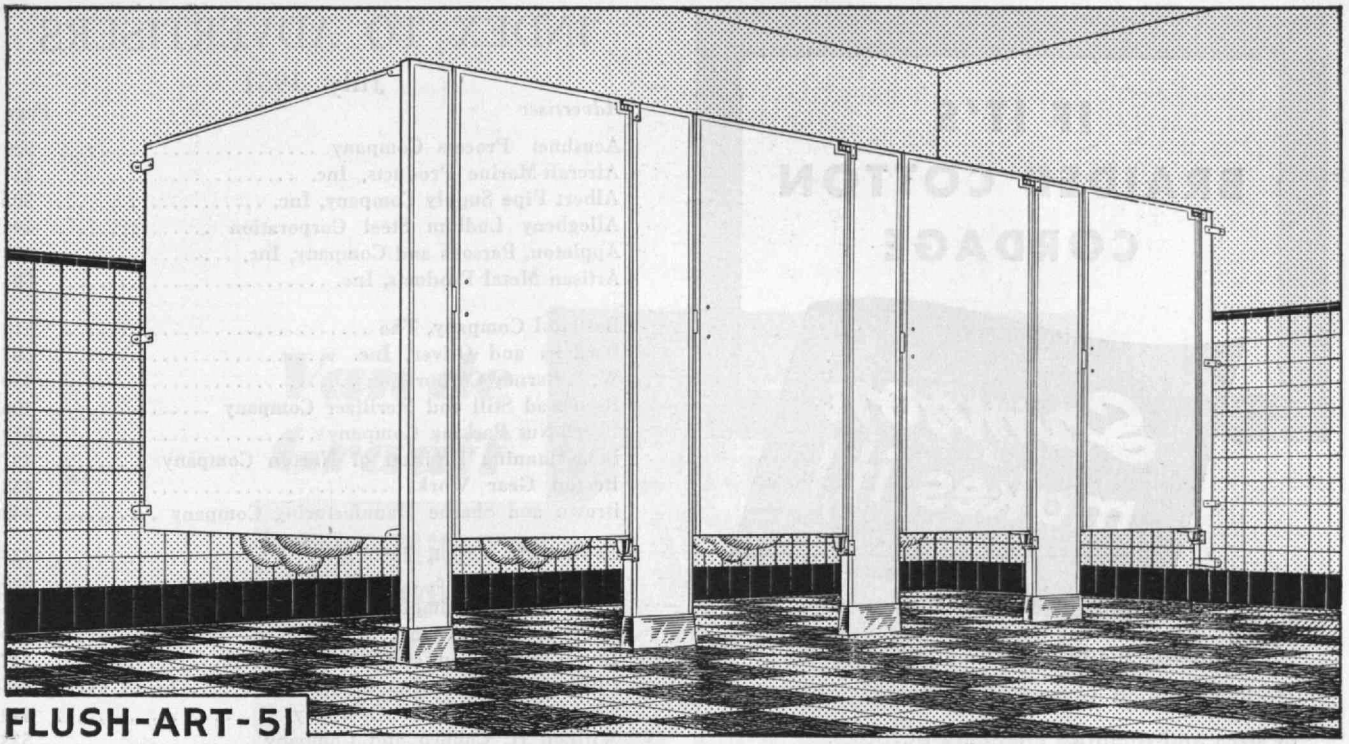

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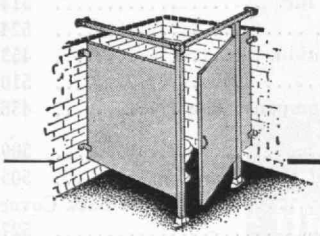

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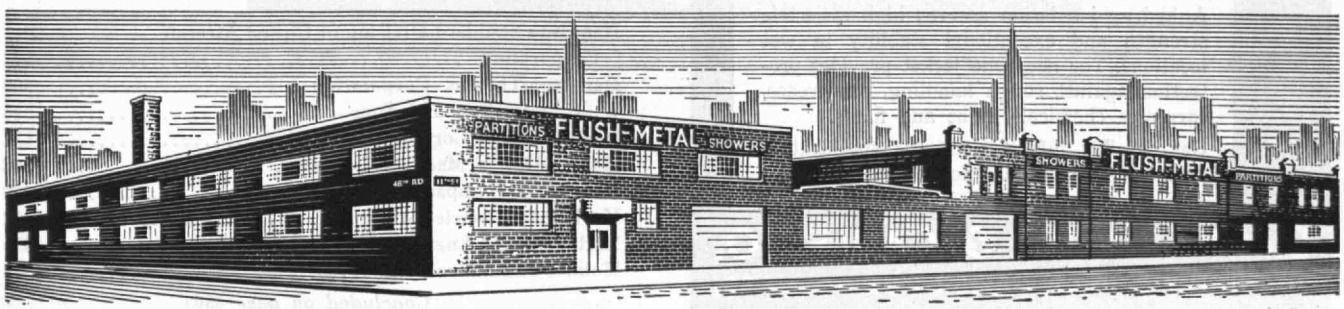

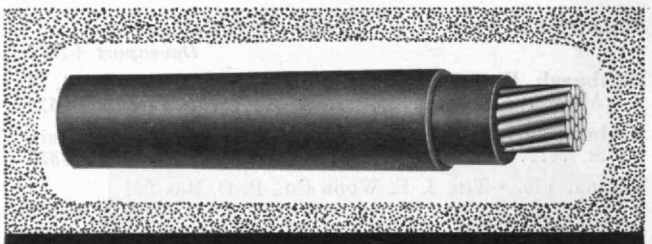

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In the '50's

as in the '40's

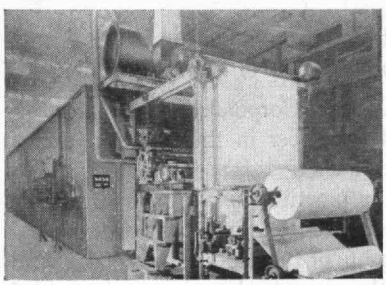
ROSS Systems Will Play a Prominent Part In Production

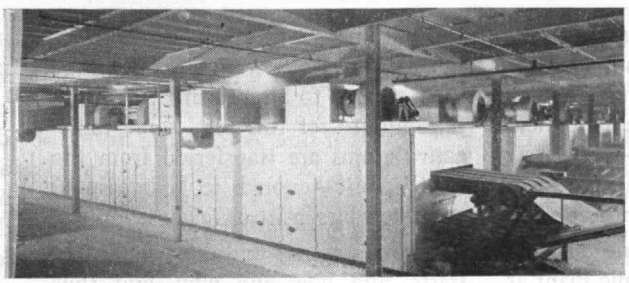
ROSS SYSTEMS

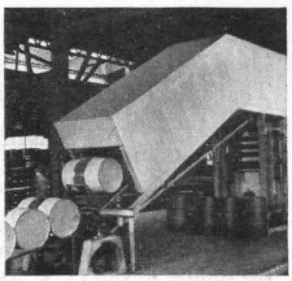
AIR HEATERS
INDUSTRIAL DRYERS
INDUSTRIAL OVENS
HEATING, VENTILATING
AIR CONDITIONING
WASTE HEAT RECOVERY

Throughout the period of World War II, the J. O. Ross Engineering Corporation was 100% engaged in designing and installing essential war work systems. Requirements for materials and methods of processing them that had been unheard of prior to that period presented new problems in production that were met and solved by ROSS engineers.

Today, ROSS is better than ever prepared to again contribute mightily to the present war work emergency from a standpoint of engineering knowledge, experience and manufacturing facilities in assuring the most efficient production of almost any type of product or material.







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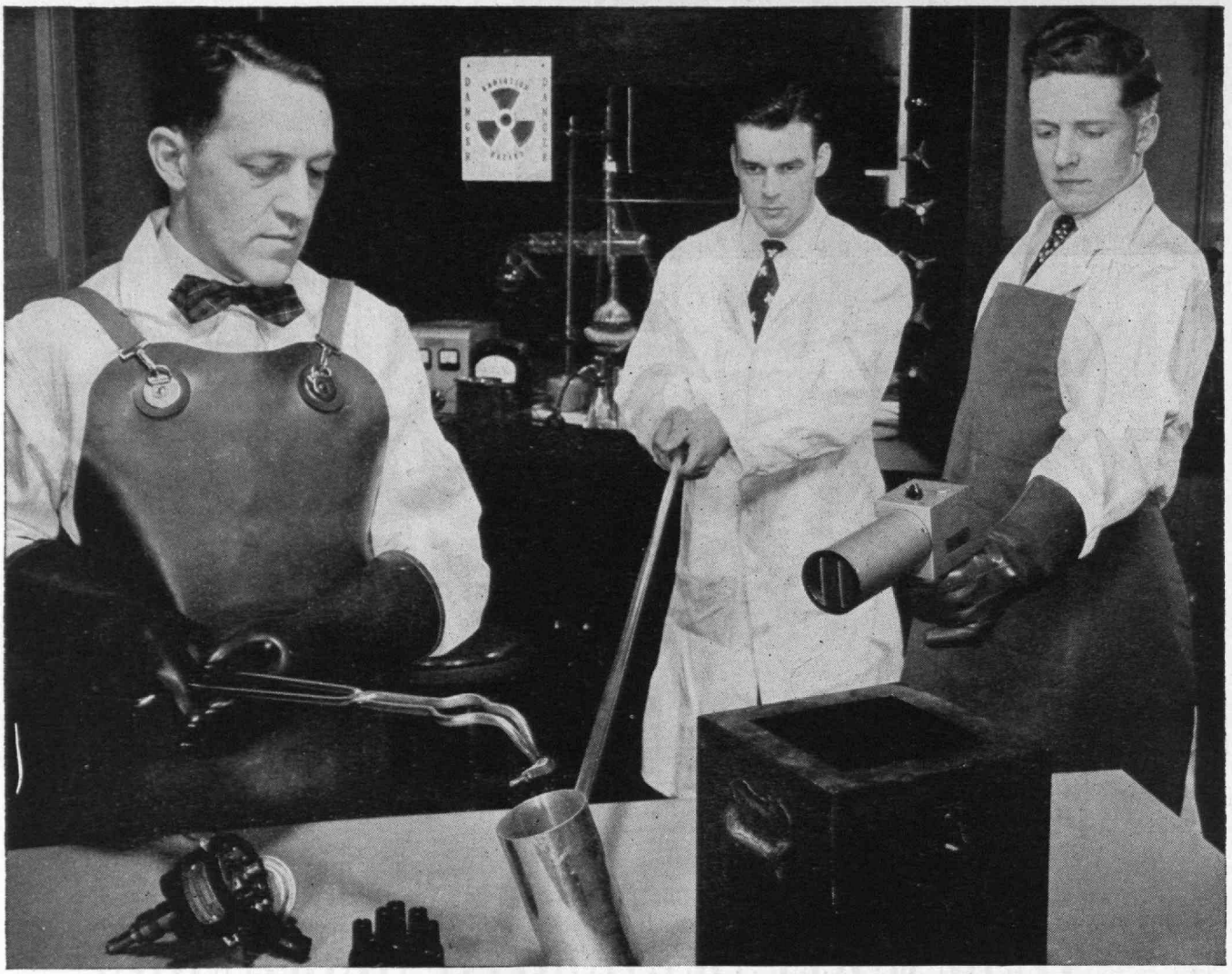

In this "Radioactive Materials Room" at Chrysler Laboratories, many stronger metals . . . better designs . . . smoother-running, longer-lasting parts have their beginning. Note the protective lead-and-rubber gloves and aprons, and the thick lead box in the foreground where "hot" parts are safely stored.

ATOMS FROM OAK RIDGE COME TO DETROIT

The men in the picture are handling "hot" or radioactive automobile parts. That's the reason for their long-handled tools, the radiation exposure meter held by the man at the right—and their caution. It's all part of a new kind of research at Chrysler Corporation.

Our engineers send engine distributor points to the U. S. Atomic Plant at Oak Ridge, Tenn., where they are made radioactive in the famous Atomic Pile.

Returned to Detroit, a "hot" point is mounted in a standard distributor, and given a test run as though in your car. Ordinarily it takes hundreds of hours of engine operation for points to wear enough to be measured. But in a *few minutes* of this test, some radioactive atoms are transferred from the "hot" point—enough to be measured accurately by sensitive Geiger Counters.

In this way, we find out where wear starts, and how and why, and thus learn to develop better points that will run much longer without replacement.

Similar tests, using "hot" piston rings, gears, bearings and the like, are helping us to develop longer-lasting parts for cars and other vehicles, and improved ways of lubricating them.

Chrysler Corporation was an auto industry pioneer in this peaceful use of atomic energy. It's one more example of the practical *imagination* that leads directly to the fine performance and long life of the products we make. And another reason why our experience and skills are always ready for a wide variety of challenging jobs—from cars and trucks and military vehicles to industrial engines, heating and cooling systems—and even railroad freight car trucks.

Practical IMAGINATION guides research at **CHRYSLER CORPORATION**

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Technology Review Photo

THE TECHNOLOGY REVIEW

TITLE REGISTERED, U. S. PATENT OFFICE

EDITED AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

CONTENTS *for July, 1951*

VOL. 53, No. 9

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THE
TECHNOLOGY REVIEW

Vol. 53, No. 9 July, 1951

The Trend of Affairs

Wanted: Engineers and Scientists

REVIEWING the nation's shortage of competent engineers and scientists, Karl T. Compton, chairman of the M.I.T. Corporation, told members of a symposium on "Hydrodynamics in Modern Technology" at the Institute that "we are in an extremely bad situation" because of the drop in current engineering enrollment in colleges and universities. At a dinner meeting on June 4, Dr. Compton said:

All evidence is that engineering is a rapidly growing profession. Each year since the war this growth has been greater than any estimates have predicted. I see no likelihood that good men graduating from engineering schools in the coming years will fail to find interesting and challenging work.

The most important of our contributions in this new [hydrodynamics] laboratory will be the education of young hydrodynamicists to assume the new responsibilities in this rapidly growing field of technology.

Speaking of the shortage of scientific and engineering man power, Dr. Compton said that from a peak of 50,000 in 1949 the number of graduates from engineering schools throughout the country will decline to 32,000 in 1952, 22,000 in 1953, and 12,000 to 17,000 in 1954. Estimates place the need for engineering graduates at 30,000 to 40,000 per year throughout this period.

Even this spring, he said, we were faced with a very definite deficit in engineers. The demand for some types of scientists and engineers is described as hysterical, and it is high in all scientific and engineering fields. "The most important single thing that can be done to help remedy this situation," Dr. Compton urged, "is to correct the impression that we are oversupplied with engineers."

Members of the Class of 1951 entering Walker Memorial to attend baccalaureate service in Morss Hall.
M.I.T. Photo

No Brush-Off

THAT brushes are an integral part of present-day life may be demonstrated by considering merely the first hour of the morning. From bed we arise onto a carpet that is brushed with a carpet sweeper, step across a wooden floor that was varnished with a brush, thence to bathroom tiles that were cleaned with a scrub brush. We brush our teeth and hair, lather our face with a shaving brush. The baker's bread for our breakfast toast was made in a pan that probably was greased with a brush before use, and scrubbed clean with a brush afterwards. While dressing we whisk the lint off our clothes, and touch up the shine on our shoes with a brush. Then, as we emerge into the fresh morning air, we encounter neighbors sweeping off their sidewalks.

But despite its commonplace familiarity, the brush embodies a striking paradox. For it serves two diametrically dissimilar purposes: either to apply, or to remove, materials. The removing action of brushes depends in part upon a whisking or flicking effect of the fibers, and partly upon scrubbing or abrasive action. The brush is useful in applying materials, as in painting, because it can hold viscous fluids among its fibers.* A third characteristic of brushes that underlies their value in both removal and application uses is flexibility of the fibers, which effects adaptation to irregularities in surfaces to which brushes are applied.

The simple and obvious nature of the brush apparently made it one of mankind's earliest tools. Brushes that are merely bundles of twigs, or hairs, tied together have been found among the relics of early civilizations and of primitive savage man.

*Maximum paint retention by brushes requires a sharply tapered fiber. This is one reason why synthetic bristles have not entirely replaced certain costly natural bristles in paint brushes; as to date synthetic fibers have not been made with as pronounced a taper as some of the natural ones.

But despite its ancient lineage, the brush today seems to be in little prospect of being displaced technologically. Thus, although spraying and dipping are now often used to apply paint or other surface coatings, application by brush remains superior for many types of painting. Similarly, in some localities that prototype of broom wielder, the street sweeper, has been supplanted by huge mobile street-cleaning machines; but nevertheless motor-driven brushes remain the basic functioning part of such machines. Numerous like examples could be cited to show that the primitive, paradoxical brush is firmly entrenched within our contemporary scene.

Precision Tachometers

In numerous military and industrial control applications, tachometers have important uses. In addition to their obvious application of merely indicating rotational speed, tachometers may be used as velocity feed-back elements in computing machines, in automatic pilots for planes and missiles, in automatic fire-control mechanisms, or in the mechansims for controlling radar antennas. For some applications, tachometers are used under conditions requiring a high degree of accuracy. The Dynamic Analysis and Control Laboratory has, therefore, been engaged in studies aimed at improving tachometer performance, and research has led to noteworthy improvements in one type of tachometer, called the drag-cup alternating-current tachometer.

Essentially, the drag-cup alternating-current tachometer is a two-phase induction generator with a voltage of constant amplitude and constant frequency applied to the winding of one phase. The design is such that, over a substantial range of speed, the winding of the second phase yields another voltage of magnitude nearly proportional to the speed at which the tachometer is driven and phase shift nearly constant with respect to the supply voltage.

Since some of the applications of this type of tachometer require very high accuracy, thorough analysis of all details influencing errors or departures from ideal performance is essential to favorable design and adaptation in a particular situation. Consequently, an extensive analytical and experimental study was conducted by Richard H. Frazier, '23, Associate Professor of Electrical Engineering. Results of this study led to the development of relatively simple and convenient mathematical expressions for tachometer performance in a form readily checked by measurement. The selection of favorable proportions for the electromagnetic parameters in the initial design, and the study of errors as functions of speed, frequency and amplitude of the source of voltage, temperature, and dissymmetry and inhomogeneity of parts was consequently greatly facilitated. The influence of the various parameters in determining the magnitude and phase of the output voltage also became more readily evident, so that procedures in calibrating and adjusting the tachometer could be improved.

Over a speed range of from zero to several thousand revolutions per minute, the magnitude of speed errors can probably be reduced to about 0.01 per cent, and errors in phase shift to about 0.01 degree.

Microwave Spectroscopy

Under suitable conditions, all matter absorbs or emits electromagnetic energy in a manner depending upon the frequency with which elementary particles of matter move. The study of the absorption and emission of electromagnetic energy as a function of wavelength is called spectroscopy. The vast amount of data collected by spectroscopists for nearly a century has been instrumental in providing extremely valuable methods of chemical and physical analysis. It has also provided much necessary experimental data by which to test and check the various theories of atomic physics which have been devised.

Originally, studies were made of the bright and dark lines of the visible spectrum, from which spectroscopy derived its name. At a later date, investigations were conducted at the longer wavelengths of the infrared region. With the development during the past decade of new electronic devices capable of producing appreciable amounts of power in the microwave region, spectrographic studies have been extended to still longer wavelengths.

Although certain exceptions can be found for any broad generalizations which might be made, by and large, spectroscopic data at optical frequencies were found to produce information regarding the behavior of electrons within the atom; whereas infrared spectroscopy yielded valuable clues regarding the vibrations of atomic nuclei in matter. Spectroscopic studies have now been extended into the microwave region and are providing much useful information regarding the rotation of atomic particles in gas molecules. In the Research Laboratory of Electronics (an interdepartmental laboratory operated jointly by the Department of Physics and the Department of Electrical Engineering) a group of research workers under the direction of Malcolm W. P. Strandberg, '48, Assistant Professor of Physics, are carrying on investigations in the range of from three millimeters to 10 centimeters.

As a relatively new field for delving into atomic structure, microwave spectroscopy provides means for determining molecular information not readily obtained with optical or infrared spectroscopic means. In addition, however, microwave spectroscopy provides a much greater resolving power than is attainable when the shorter wavelengths are employed.

The program in microwave spectroscopy is being undertaken to determine the extent to which microwaves can be used to yield information regarding atomic and molecular structure. The field is also being investigated to determine how best to manipulate the observed data in an efficient manner in order to provide the most useful information. Finally, the physical properties of certain general types of molecules have been studied theoretically, and microwave spectroscopy has been employed to obtain experimental checks of present theories of the structure and behavior of matter. Certainly microwave spectroscopy will enable us to enlarge our concept of molecular and nuclear structure. But there is also a good possibility that microwave spectroscopy will find use in industrial analysis and control, just as the larger and more mature fields of optical and infrared spectroscopy are doing at the present time.

Sound Approach in Plastics

HIGH-FREQUENCY vibrations of the air may provide a convenient and rapid method of determining a number of important properties of plastics. In the sound approach to the investigation of the properties of plastics, ultrasonics may be used to determine the degree of polymerization or cure. But the method also has been found to have application in providing indication of molecular weights and in making possible the measurement of certain mechanical properties of the plastic. Such properties as energy absorption and moduli of elasticity have been already determined by ultrasonics.

The ultrasonic technique employed in the M.I.T. Plastics Research Laboratory, in research sponsored by the plastics division of the Manufacturing Chemists Association and the Army Ordnance, and conducted under the direction of Professor Albert G. H. Dietz, '32, of the Department of Building Engineering and Construction, is an adaptation of techniques originally developed and used in the Institute's Acoustics Laboratory by Theodor F. Hüter, A. Wilson Nolle, '47, Adone C. Pietrasanta, Jr., '51, and Ira Dyer, '49. Bursts of ultrasonic sound, in the frequency range of 1.5 to 2.5 million cycles per second, are sent through the specimen under investigation, and the time for the signal to traverse the material and the loss of signal strength are both measured. Pulses can be varied from about one to 20 microseconds in duration so that no overlapping of pulses occurs in the material. Accurate determination of the input and output times of the initial points of the pulses is possible, and the time required for the pulse to traverse the specimen can be measured accurately. Precise determination of the attenuation (or loss of signal strength) is also possible. The traverse time is related to the modulus of elasticity of the material, and the attenuation of the signal is a measure of the energy absorption and damping capacity.

In experiments with polyester-type resins, measurements were made of the velocity of propagation and of attenuation of signal during the period when the polyester gradually changed, by polymerization, from a thin liquid to a thick gel, and then to its final hardened state. It was found that the velocity of propagation of the ultrasonic sound increased approximately twofold during polymerization, the change occurring primarily during the gel stage. Attenuation of the signal increased abruptly during the gel stage, becoming some seven times as great during this stage as in the liquid stage, but decreased again to approximately three times the original attenuation when final hardening of the resin occurred. Large differences of behavior were thus found during polymerization.

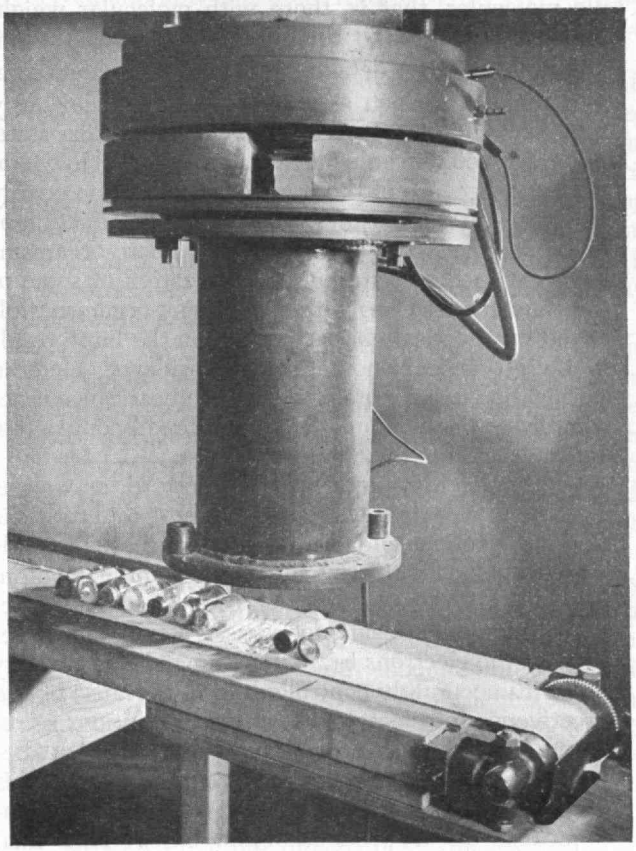
Similar experiments are projected for other types of resins such as phenol and resorcinol formaldehyde which harden or polymerize by condensation or splitting off water as hardening takes place. Experiments with polymerized thermoplastic resins having different average molecular weights indicate that attenuation is related to average molecular weight. Velocity of propagation appears to be the same for all molecular weights, but seems to increase as the temperature is lowered.

Electronic Sterilization

A NEW sterilization method, which acts virtually without heat, promises to have important applications in the medical, pharmaceutical, and food fields. This method has been under study at M.I.T. for some time in a program of research, supported, in part, by the Atomic Energy Commission and the National Institutes of Health, and directed by John G. Trump, '33, Associate Professor of Electrical Engineering, with his associate, Kenneth A. Wright, '47.

Streams of electrons with energies up to four million volts, produced by a Van de Graaff accelerator, are projected through the material to be treated, which is often sealed within its glass or metal container. Sterilization by high-energy electrons is accomplished in less than a second and raises the temperature of the absorber less than 10 degrees F., even when heavily contaminated with radio-resistant organisms. A wide variety of heat-sensitive pharmaceuticals, including the antibiotics, adrenal cortex extracts, and surgical sutures, have now been electron-sterilized in containers without adverse effects.

Studies on blood plasma are being carried out in the High Voltage Research Laboratory of the Department of Electrical Engineering in co-operation with groups at the National Institutes of Health, the Bussey Institute of Harvard Medical School, and the Red Cross. At this time, the effects of high-energy electrons on a variety of viruses are being systematically studied in an effort to predict the effect of cathode rays on the hepatitis virus, a virus which causes jaundice in those



Pharmaceuticals, small food products, and similar items can be sterilized by electron beams even after packaging, since no appreciable temperature rise occurs in the electron process.

who have affected plasma or whole blood. As a result of these studies, within recent months the 37 per cent survival dose has been determined for the poliomyelitis, herpes, mumps, vaccinia, and rabies viruses. The lethal effect of electrons follows an exponential law on both viruses and bacteria, and the dose required to produce complete sterility can be predicted when the characteristic survival dose of these organisms is known.

Concurrent with such studies of the virucidal and bactericidal action of high-energy electrons are studies of the effects of this radiation on other constituents of the absorbing medium. In blood plasma work, studies have been made on the tolerance of such components as prothrombin and fibrinogen, two large protein molecules which are important in the clotting mechanism. Both of these molecules are inactivated by ionizing energy equivalent to 200,000 roentgens when irradiated in the liquid state at room temperature, but show very little loss of activity when given 2×10^6 roentgens equivalent physical (abbreviated rep.) at temperatures near dry ice. The practicability of low-temperature irradiation is one of the attractions of high-energy electrons, which have a maximum penetration of one centimeter in aqueous solutions for each two million volts of energy. It is probable that cathode-ray sterilization of the formed elements in whole blood – the red cells, white cells, and platelets – can also be accomplished, and studies are now being started with this purpose in mind.

The protective action of low-temperature irradiation, as well as the introduction of protective agents, is another aspect of high-energy electron studies. Simple molecules, that is, those with molecular weight under a few thousand, tolerate many times the sterilizing dose without detectable effects. The more complex molecules, such as the two proteins previously mentioned, tolerate 2×10^6 rep. when in the dry state, but are affected in aqueous solution, unless at low temperature, because of the transfer of ionization energy from the water molecules. The fundamental action of high-energy electrons in destroying micro-organisms begins with the excitation and ionization of some of the constituent atoms within the living organism, followed by chemical changes which, in the limit, result in their demise. Energetically considered, electron sterilization is far more efficient than heat, since it accomplishes its mission by affecting directly only a few molecules within the organism.

Ultraviolet light and nitrogen mustard, as well as high-energy electrons, are being investigated for their sterilizing actions and clinical proof of these methods is now, for the first time, being made on human volunteers. Of all of these methods, the high-energy electron approach appears to possess clear advantages because the electrons irradiate the material uniformly and with accurately controlled doses, because of the effectiveness of electrons on aqueous solutions at reduced temperatures as well as in dry form, and because Van de Graaff accelerators can be used in this method to sterilize large quantities of material economically on a production-line basis. This final advantage is particularly important in the pharmaceutical industry since sterilization can be effected after the products are manufactured and packaged.

Trailing Meteors

METEORS are being used to determine air densities and temperatures in the upper atmosphere in a joint Harvard-M.I.T. research program sponsored by the Navy Bureau of Ordnance. The meteors are photographed from two stations, 18 miles apart, operated by the Harvard Observatory in the vicinity of Las Cruces, N.M. The photographic plates of meteor trails are shipped to M.I.T. where they are measured and reduced by a staff of computers at the Institute's Computation Laboratory. Fred L. Whipple, Professor of Astronomy at Harvard University, directs the program of photographing meteors, while Luigi G. Jacchia, a research associate in the Department of Electrical Engineering, is responsible for the reductions and the atmospheric research program at the Institute.

Essentially, the program is one of ballistics. Ordinarily, in the computation of gunfire trajectories, the air density is given and the deceleration experienced by the projectile is computed point by point. In the case of meteors, the deceleration is obtained directly from measurements on photographs of meteor trails, while the air density responsible for the deceleration can be computed for various points. Once the shape of the atmospheric density curve has been established, atmospheric temperatures are easily derived.

At the twin stations in New Mexico, wide-angle cameras are trained toward prearranged areas of the sky, so that the same meteor can be photographed from both stations. Cameras at each station are provided with rotating shutters which interrupt the photographic record of meteor trails at known and regular time intervals. The breaks in the meteor trails are measured and referred to the positions of background stars. Then, by triangulation, the position of the meteor in spaee can be determined at a great number of points equally spaced in time, from which the instantaneous velocities and decelerations are computed.

Measurements of great accuracy are essential to obtain reliable meteor decelerations. With four high-precision measuring engines, purchased by the Navy Bureau of Ordnance for use in the Technology meteor project, the accuracy in position measurements on photographic plates can be pushed to approximately two microns; with the present cameras, this corresponds to an error of roughly six feet in the spatial position of an average meteor. In the next few months, new cameras of a modified Schmidt type will come into operation which development should substantially extend the range of observed meteor heights.

With the present cameras, meteors have been photographed at heights ranging from 37 to 117 kilometers, although atmospheric densities have not been determined for any height greater than 98 kilometers. An interesting feature of the upper-atmosphere sounding by means of meteors has been the discovery of a strong seasonal fluctuation in the air density at heights between 70 and 85 kilometers. More recently, Dr. Jacchia was able to show that there is a noticeable difference between the atmospheric-density profile over New Mexico and that over Massachusetts – a fact which indicates that latitude may have a marked effect on such profiles.

The Importance of Fundamental Knowledge

In Developing Leaders to Assume Enlightened Responsibility in an Increasingly Complex Technology, Mutual Support of Education and Industry Becomes Requisite

By ALFRED P. SLOAN, JR.

TONIGHT is a significant event in the life of the Massachusetts Institute of Technology. We pause in our daily routine to mark the successful culmination of a two-year intensive effort. The M.I.T. Development Program now is completed. Its purpose was to create a reservoir of physical and financial resources, essential that M.I.T. may continue adequately to discharge its broadening responsibilities to our free society. An additional purpose has been to capitalize Technology's expanding opportunities for constructive accomplishment. But of far greater significance has been our intention that M.I.T. remain free to fulfill its destinies without prejudice, governed in its educational concepts, its scientific programs, and throughout all its administrative activities solely by its own interpretation of what constitutes the sound and the desirable based upon the truth. Such have been the Program's objectives. Such are now what we can call our accomplishments.

But that is not all. As friends of Technology, we would be remiss on this occasion if we did not express our appreciation to the Institute graduates, to corporate enterprise, to many philanthropic institutions, and to individuals who have supported our cause because of their respect for the Institute's accomplishments and appreciation of its significance as a fundamental source of enlightened progress. Thus, time, effort, and resources have been contributed by many. The result is a task successfully accomplished, the magnitude of which, two years ago, made it seem almost insurmountable. After all, 20 million dollars is not an insignificant sum in a project of this type, notwithstanding these days of colossal figures.

Alfred P. Sloan, Jr., '95, giving his address on "The Importance of Fundamental Knowledge."

Photo by Sam Vandivert

But we would be doubly remiss if we did not express our profound gratitude to our able chairman and his associates who have given unstintedly both their time and effort to the cause. It is to him and to them that we looked for the leadership and inspiration so essential to the success of any such undertaking. I am sure all the friends of Technology, whether or not gathered here tonight, say as I do: Thank you, Mr. Dalton, for a magnificent performance, well conceived and ably executed. And in saying this we realize how inadequate that recognition necessarily must be in relation to accomplishment.

Perhaps too few appreciate how change has affected M.I.T. during the past 25 years. As I see it, there has been both a revolution and an evolution. There has been a revolution in the sense that the Institute has emerged from the status of an engineering school with limited objectives to that of a scientific institution of unlimited opportunities, carrying with it corresponding responsibilities both to the economy and to the nation.

There has been an evolution in the sense that, under the dynamic and inspiring leadership of Dr. Compton, ably shared by Dr. Killian in the more recent years, M.I.T. has established for itself a position of recognized leadership as the outstanding technological institution of our time. It has earned this leadership by the soundness of its educational concepts and the scope of its scientific research. This has been done not only in time of peace but, more dramatically, in time of war by its technical contributions to our national defense. Every graduate, every friend of the Institute, all concerned with economic and scientific progress, have reason to be proud of the record of the Massachusetts Institute of Technology. Confidence in its future and the record of its past performance have been significant factors in the successful conclusion of the Development Program.

We look upon our universities, colleges, and other educational institutions as instrumentalities to process our youth that they may better discharge their responsibilities to themselves and to society. But today, to

my mind, that is far too limited a concept. With the advent of the mechanical age, an age stimulated by continuous scientific discoveries, these institutions have become, to a major extent, the logical sources of fundamental knowledge. They have the scientific talent. They operate in a climate conducive to fundamental thinking. Time is not a consequential factor. Fundamental knowledge is what productive enterprise applies to its material advantage and for its technological progress; and through the application of such knowledge, productive enterprise supports and advances our standard of living.

Scientific progress is a basic component of a virile and dynamic economy. It is the foundation of fundamental progress and national security. What has raised us to our present world economic predominance? What has enabled us to support, to a major degree, the economy of the western world's civilization? What will enable us to maintain our economic leadership and insure our national security against the dangers that threaten us? Nothing more importantly than our mastery of science and invention. Nothing more certainly than our ability to put the productivity of our knowledge on the assembly line of mass production. But to accomplish this it is essential that we maintain a continuous flow of this skill and understanding, and this we can insure only by expanding our reservoir of fundamental knowledge.

The economic progress of the postwar world will be determined by the creative ability of our research. The effectiveness of our instrumentalities of national defense will be similarly determined. American enterprise is expanding its research facilities and supporting organizations on a monumental scale. But it is a fact that only to a small extent, and in a limited number of instances, are the objectives of these expenditures directed to the area of fundamental knowledge. The greater part is for the purpose of applying fundamental knowledge, otherwise created, to the specific commercial needs of each particular enterprise. Expressed otherwise, enterprise has been concerned more importantly with exploitation than with creation.

Why has M.I.T. conducted its Development Program? On the announcement of its successful completion, why did Dr. Killian say, in effect, that it is the beginning and not the end, so far as the financial needs of Technology are concerned? The reason stands out crystal clear and it applies to all our institutions of higher learning which follow the same general pattern as Technology. Never have these institutions, which provide our fundamental knowledge, so needed financial support as they do today. In the last 10 years costs of education have quadrupled. It is stated that more than one-fourth of our colleges, universities, and technological institutions are operating with deficits. Like everything else they are caught in an economic dilemma of declining financial support as the old sources of revenue dry up, on the one hand, and lowered income, which means reduced purchasing power of their capital assets and rising costs of operation and capital needs for expansion and development, on the other.

If we are to maintain and expand our principal source of fundamental knowledge and perpetuate our free society, in which we all believe, then it is vital that we find a way to keep our colleges, universities, and technological institutions virile, progressive, and, above all else, free. This is impossible unless they have the essential financial support. It is well said that if we lose our economic freedom we lose all freedom. This is equally true if we lose our educational freedom.

There are a limited number of sources to which higher education can look for the really substantial help it needs. The one that comes first to mind is the Federal Government. We have become far too accustomed to look to that source for many things, the means for which we would be better advised to find for ourselves. If our educational institutions become dependent upon government for their support, then through the process of evolution they must accept political control. We need no better evidence of what this means in principle than the moving picture of current events.

Knowledge — A Sound Investment

Looking at the long-term position, so far as I can see there remain two continuing and substantial sources of private financial aid. One is the foundation. But the very circumstances which now prevent the continuation of private support of education in the substantial amounts which will be required will, in turn, prevent private foundations from becoming the source of expanding revenue for the long-term future.

The second source of financial support is corporate enterprise. An encouraging feature of the Technology Development Program is the generous support it has received from this source. Why should not productive enterprise, however constituted, take a part in the financial support of our universities, colleges, and technological institutions? Why should this not be done on an organized, as distinguished from a haphazard or opportune, basis? Why should not such support be recognized as a proper use of corporate funds on a parity with other business expenses? It seems clear to me that corporate enterprise should support the sources out of which flow fundamental knowledge; and do it in its own self-interest as a sound business investment.

I have spoken of fundamental knowledge in general terms. Fundamental knowledge divides itself into two categories with a wide area of no man's land between. One is the area of the natural sciences. Our great technological institutions, like M.I.T., confine themselves, to a major degree, to this area. The second is the broader area of the social sciences and the humanities. This area embraces the relationships within the social structure itself and of that structure with our productive economy. I am strongly of the opinion that problems relating to our social structure are of increasing importance, even if they are not directly related to the needs of our productive economy, and that they will have a far greater significance in fashioning the pattern of our society of the future than has been the case in the past.

Higher education is, in a sense, big-scale business. Industry in the postwar years has undergone an enormous development. Output has been dramatically increased. Working capital has expanded. Employment

has mounted and far higher wages are being paid. Tens of billions of dollars have been invested in the expansion of productive facilities. It is estimated that the population increase of the forties, if maintained during the fifties, will mean 30 million more people by 1960. This means more of everything just to maintain our present standard of living. If we are to advance our standards – and there is no reason why we should not do so – we must superimpose upon this "more of everything" a still higher level of productivity, or more of everything again. This demands a more intensive effort on a wider front to increase the flow of fundamental knowledge. Business has been able to strengthen itself in the highly profitable postwar years by retaining a large part of its expanded earnings for development purposes. Education has had no such opportunity. Yet today our educational institutions, like our business enterprises, need new and modern facilities; they need increased working capital and a greater revenue to meet the cost of everything if they are to maintain their relative position in an expanding economy and discharge their obligation as a potent and aggressive force in the evolution of our modern society.

What might be the *modus operandi* of broadened support of our educational institutions by corporate enterprise? Under existing law, corporations have the privilege of giving, as a contribution, 5 per cent of their yearly profits to objectives such as we are discussing, provided the funds for such objectives are given to accredited institutions. Financial support might consist of a grant for what I may call operations, such as fellowships, scholarships, and the like; or the support might go for capital goods, such as buildings, laboratories, and so on, or for general operating or overhead expenses.

It is important that consideration be given to the need of a well-balanced financial structure and that we avoid support in too limited an area, thereby involving an additional burden in the way of overhead expense. This consideration is too often overlooked. Continuity of any relationships that might be established is also a highly significant and essential factor. If our educational institutions are to be soundly supported and placed upon a strong financial structure, there must be a recognition of the time factor. A grant here and there, made for a specific piece of research or for any other purpose for a limited time, does not permit the donee institution to develop an organization and to attract to its staff talent of a high scientific caliber. Lack of security for the long-term future becomes involved. This is a realistic part of the problem that must be faced and solved.

A constructive approach to a more continuing and a better organized relationship between corporate enterprise and our institutions of higher learning might be secured if corporations were to form a foundation especially dedicated to such objectives. I am confident such a proposal, if advocated by management, would have the support of corporate stockholders. Into such a foundation might be contributed, from time to time, funds not specifically earmarked. The funds so contributed would be dependent upon the profits of any supporting enterprises, such profits varying from year to year; and, of course, the contributions would be determined by the business judgment of the board of directors of the enterprise.

Such a foundation could be operated by nominees of the contributing enterprises to whom would be delegated the responsibility of making grants either from the standpoint of the specific needs of an institution or from that of a more general public purpose. The advantage of such a plan would be that funds, which might not be needed immediately, could be accumulated and be put aside to be used at other times, thus affording a more orderly and sustained effort over several years.

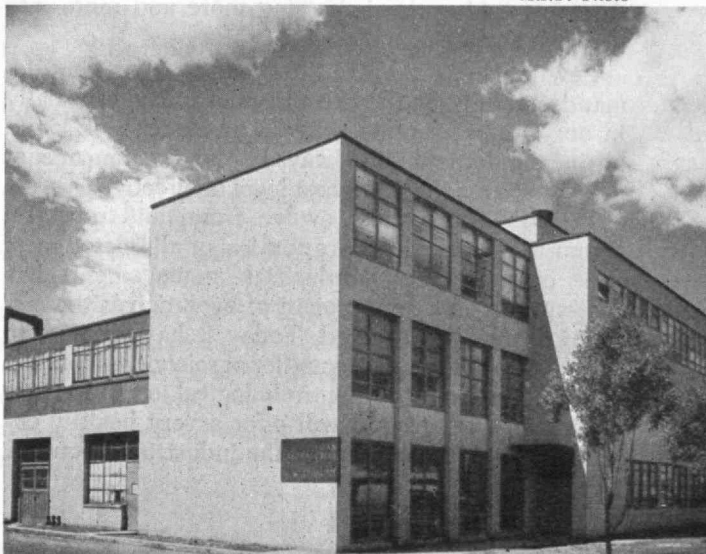
A Philosophy for Industry

Many projects – the most significant ones of all, as a matter of fact – importantly involve the factor of time. While in no sense discounting the desirability of endowments, I question whether financial support under present circumstances should necessarily follow the endowment pattern. I am strongly of the belief that grants – and this applies particularly to corporate and foundation grants – should be liquidated within a limited number of years, say five or 10 years. A moderate grant spent over a few years may well accomplish a highly constructive result, one out of all relationship to the amount involved. It may serve to start a chain reaction out of which important developments may ensue, greatly expanding the original concept.

Some will ask: What is going to happen when the money has been spent? Who is to carry on the project? If the project has justified itself, it is reasonable to expect that further support will be forthcoming. If it has not justified itself, it should be liquidated. Further financial support demands a realistic appraisal of the project's future validity. One of the problems that frequently arises in all forms of endeavor is that of disposing of a project which may either have outlived its usefulness or have ceased to be efficient. If funds are specifically available, liquidation is difficult. In a sense the project then becomes a vested interest.

The financial support of our educational institutions by foundations involves no question of fundamental

M.I.T. Photo



The Sloan Automotive Laboratory at M.I.T. represents one example of industrial support of educational activities which makes a return to industry.

policy. It is to just such a purpose that the resources of foundations are dedicated. Financial support by corporate enterprise, on the other hand, may raise questions of policy on the part of those concerned with corporate management. Questions may also be raised by others who may believe that such support should be made by individual stockholders rather than by the corporation itself on their behalf. Nevertheless, I am convinced that the concept, although in no sense new and already in operation on a limited scale, is both economically and socially sound and vitally needed. It should be expanded.

Doubts as to the propriety or, more specifically, as to the legal justification of corporate financial support of our educational institutions will, of course, arise. Are such projects within the corporate purpose and hence within the power of the directors? I recently had the opportunity of examining a very comprehensive historical record of the legal phases of corporate giving extending back over many years. I was both gratified and surprised to find strong judicial support for the principle of such corporate giving in practically all of the relatively few cases that had been adjudicated. In some cases the action of directors in making a grant appeared, even from my point of view, to be far removed from the corporate enterprise; yet it received the sanction of the courts. After examining this study I wondered whether there were not more fear than substance in the point of view held by many. However, I am advancing here a broad concept without attempting to present the details. I am sure that such restrictions as presently may exist are within our power to eliminate if we have the will and purpose so to do.

There remain a few words to be said about the new School of Industrial Management now being organized at M.I.T. The purpose I had in mind in suggesting the new school was to provide an opportunity for the young men of today to better prepare themselves to meet the exacting demands of industrial management as they become the industrial executives of tomorrow. In other words, the purpose has been to correlate the complex problems of management in modern technical industry with science, engineering, and research. It has been my observation, from an experience of many years in technical industry, that executives with a background of science and engineering are unusually well qualified to deal with the intricate problems of industrial management in our technical enterprise. American enterprise is passing more and more into the technical area.

Few realize, I believe, the broad and exacting demands made upon the executives of today, especially in our large-scale enterprises. The exercise of sound business judgment will always be the keystone of success; yet to reach the highest level of effectiveness, executive decisions must evolve from, and must be supported by, a scientific appraisal of all related facts and circumstances. Industrial management has passed through a long process of evolution as the mechanical age has evolved. Today it has become, in every sense of the word, a matter of science — a profession. Therefore it seems entirely logical to assume that a scientific background will offer a very healthy climate for the development of the industrial executive.

In the administration of the new school, it is my hope that emphasis will at all times be laid on bringing into the training, in a truly realistic manner, the practical problems that face the industrial executive in his administrative capacity. The contribution that the new school can make in the future to higher standards of industrial efficiency and effectiveness will, as I see it, determine the extent to which this hope will be realized. The school will seek the co-operation of an outstanding group of industrial executives in planning its curriculum. They will contribute their managerial experience not only at the policy level, but in bringing directly into the educational concept those practical intangibles which, in the aggregate, comprise what is termed "management."

I am convinced that in time the school will establish for itself a position of leadership in the science of industrial management on a level with the Institute's other accomplishments. To that end its research problems and educational concepts should be broadly conceived. They should embrace all the significant components of industry, such as distribution, labor leadership, organization technique, and public and employee relationships. Thus the school can offer a useful service to industry in the scientific examination of problems of broad significance to the economy as well as study of specific problems in which individual units may be interested.

The role of industrial management is of great and expanding significance in our society of today. Upon its effectiveness depends the efficiency of the economic system as a whole. Upon it rests the end responsibility of making the competitive system of enterprise work. Rightly or wrongly, that responsibility must be faced by management irrespective of the handicaps that may be forced upon it and over which it may have little control. The structure of our economy is becoming more and more complex through evolution. It is the sequel of the industrial age. More complex problems arise in every area of enterprise, such as the interrelationships of one part of the industrial system with the other; the expanding role of government with its increasing interference with the economic processes; and the ascendancy of the labor movement. Many other influences have brought problems to industrial management, unknown even a few years ago.

Out of these facts and circumstances has evolved a new concept of the responsibilities of management in a free society. Management recognizes that it can no longer limit its horizon of responsibility to the mere production and distribution of goods and services, no matter how efficiently that may be done. It must broaden its scope of leadership. It must assume the role of economic statesmanship. It must consider the impact of its policies upon society as a whole in terms of advancing living standards and of expanding employment with stability. It must better inform itself as to the fundamental relationships within the system it operates in order that it may establish its procedures at the policy level with a maximum of intelligence and understanding. It must become increasingly more articulate as to what is to be done or undone in national economic policy in order that the system may

(*Concluded on page 526*)

The Need for Unity

We May Be Discovering that Freedom and Dignity Can Be Preserved Far Better by Partnership than by Compartmentalized Action

By PAUL G. HOFFMAN

A GREAT many momentous things have occurred here and abroad during the past generation, and I often think that the sensations and alarms thrust before our eyes almost every day must certainly distract us from many of the really significant developments of our times. These are the slow, yet certain, forward movements in human affairs that seldom if ever gain the headlines. One of these basic shifts in the American pattern already has had a great impact on our way of life and, in my opinion, will have an even greater impact in the years ahead.

When the United States of America set up shop in 1776, it was just as highly compartmentalized as a modern department store. Each state insisted upon absolute sovereignty with a vigor that, for a time, strained the young republic at the seams. This feeling of separatism, naturally enough, ran through the whole society. Religion demanded that it be left severely alone by everybody, particularly by government and competing sects. Farmers and businessmen put up big "no trespassing" signs over their particular areas of activity. Education was simultaneously erecting its structures in yet another clearly walled-off sector of society. "Tend to your own business" is not merely a tart comment; it puts into words an idea that was firmly embedded in the minds of whole generations of early Americans.

Paul G. Hoffman, of the Ford Foundation, and formerly administrator of the Economic Cooperation Administration, speaks on the nation's need for unity of purpose.

Photo by Sam Vandivert

I am not decrying this period in our history. It is certainly clear to me that it was the one possible way of carrying out, in those times, the firm intention of the founders that government must serve as the people's agent in certain matters, and in those matters alone; and that it shouldn't be allowed to meddle in other areas. Our fathers knew the danger of governmental tyranny, and given the economic and political conditions of the late eighteenth and nineteenth centuries, the extension of this feeling into other parts of the new society was inevitable. This era was one of insularity, and it lasted a long time. It took a civil war to bring an end to this political era by driving home to Americans everywhere that political compartmentalization of the various states probably wasn't the best approach that an expanding nation might take in solving its problems.

Breakdown of Separatism

The notion that businessmen, farmers, educators, and workers also had – that they could remain aloof from one another – began to give way shortly after the Civil War. In one way or other, each group began to venture forth from its sacrosanct cubbyhole. Farmers began to perceive that businessmen and workers were customers. Educators started to move off their campuses and out into the world of affairs, a move vastly stimulated by land-grant colleges. And the American public decided it was about time for their government to take a hand in regulating those business affairs they thought were getting dangerously big and hard to handle. The trend began with the Interstate Commerce Commission, and, shortly thereafter, in the early years of this century, trust busting moved from political platform to political fact. Campaign slogans turned into the Sherman Antitrust Act, the Clayton Act, and the Federal Trade Commission. Yet, when we came to the end of World War I, the myth of insularity among government, business, and education still had a potent hold on the minds of Americans. I have not asked any historians or social scientists about this, but I suspect that this feeling had its roots deep in a conviction that we could preserve our freedom only if we managed, somehow, to keep business as far as possible out of the hands of government, and government as far as possible out of the hands of business; if we could keep business from interfering in education, and educators from interfering in government, and so forth.

It is perhaps accurate to say that during the 1920's many of us still believed that the place for educators was in ivory towers, and that businessmen and employees were likely to prove troublesome as soon as they moved out of corporation board rooms and union halls. We certainly still felt that the national interest might be imperiled if government built anything more than a footbridge across the Potomac into either of these other areas. It was only dawning on us slowly that the United States was a whole machine that depended for efficient operation on the smooth meshing together of its various parts. Parenthetically, I might say here it seems to me very possible that this feeling of insularity extended well over into the field of international relations and found disastrous expression in our failure as a nation to give effective support to the League of Nations.

Then came the national depression. Many of our national myths went into the ash can, among them the notion that certain major activities could be walled off and left to their own devices. No one can look back on the depression and say that it was a mighty good experience, because it wasn't. In addition to the untold human hardship the depression brought with it, it produced the immediate and astonishing reaction to national insecurity which we promptly dubbed "government planning." From a nation dedicated to individualism, both the rugged and not-so-rugged varieties, we turned into a nation which appeared to see its sole chance for survival in programs written in Washington. I do not want to dwell on these sad memories. But I do want to point out here that in going through the agonies of picking up the pieces, we happened upon two related and significant truths. First, we discovered the value of unified effort in the face of common peril. Second, we discovered that a partnership of business, government, and education – a working recognition of interdependence, in short – was not the big bad wolf we had always thought it to be but that, on the contrary, it was an absolute condition for continued progress. In my opinion, in 50 years this blending of social forces will be marked by historians as a development of outstanding significance. Because we are so close to the scene, we are probably not as aware as we should be of the manner in which this partnership is actually taking form and its possible meaning for the foreseeable future.

Partnership of Colleges and Industry

The offices and factories of many of our large corporations today are being used as classrooms by neighboring colleges. Employers and employees seek the co-operation of our great educational institutions in their search for fair answers to hard questions that trouble them. The businessmen of the Committee for Economic Development find more than enthusiastic response among the teachers of the country for their work-shop program in the teaching of basic economics – a situation that would have been unthinkable even 25 years ago. Government turns hungrily to both business and education for help and guidance across the whole field of national life. These days it is not unusual for all three elements in our society to join around a single table to work out common problems. The important phrase here is "common problems." In recognizing mutual problems and objectives, we have come to realize that we are not infringing on the freedoms that are uppermost in our national consciousness but, in fact, are taking long steps toward giving them substance and safeguarding them. Freedom without law and order and unity is an empty word. I have been referring here only to the peacetime forms of this new partnership. There is no need to point out the obvious about its enormous contribution during World War II.

A little more than 30 years ago, I came out of the West to take a vice-president's desk at the Studebaker Corporation. My vocation was selling automobiles, and my avocation was highway safety. I was naive enough to think that I could enlist all of my colleagues in the sales end of the industry as fellow missionaries. Don't mistake me. I might have had humanitarian impulses, but I know I was certain that we had better do something about the increasing slaughter on our roads if the automobile industry was not to be affected with a permanent limp.

Ranging out of my headquarters in South Bend, I tried to bring into the fold my opposite numbers throughout the industry, with a total lack of success. After some months of futile effort, I had just about concluded that the cause was hopeless, and that I had better put the whole matter in my "I told you so" file for use many years later. At that precise dismal moment a letter appeared on my desk. It stated that the writer was very interested in highway safety, had watched my struggles to do something about it, and wouldn't I please stop in to see him the next time I happened to be in New York. The letter was signed, Alfred P. Sloan.

Naturally enough, I happened to be in New York in a very few days. As a matter of fact, in a very few hours is probably more accurate. Alfred Sloan, it turned out, had done a lot more thinking about highway safety than I had. Our talk was long and heartening, but I must admit I was completely unprepared when, as I rose to leave, Alfred Sloan passed across the desk to me a personal check for $25,000 with the hope that it might be of some assistance to the highway safety campaign. That check was important, far more important to the American public than it could possibly have been to me personally. It gave impetus to the founding of the Automotive Safety Foundation. Some of you may know of the Foundation's work during the past generation and a half. At the time it came into being, the highway death rate in this country was 15.9 per hundred million vehicle miles annually. Last year the comparable figure had dropped to 7.1 deaths per hundred million vehicle miles.

Alfred Sloan was one of the first of our industrial leaders to recognize that compartmentalization in business had become outmoded. His position in General Motors was never that of a dictator, but of a leader among equals. He saw that his prime responsibility as the head of that enterprise was to create conditions under which each man individually could make his best contribution; further, he saw that creation of optimum conditions for bringing out particular talents would at the same time create a spirit of team

play that could be achieved in no other way. That same attitude found welcome expression in the industry as well. To the always intensely competitive automobile business, Alfred Sloan brought his singular talent for getting people together in a common cause, in persuading a notably reluctant group to work in harness for the solution of mutual problems. Later on, the Sloan Foundation was to demonstrate in still another way this man's concern with the challenge of finding ever better ways of meshing together the complicated gears of the American machine.

In replacing the walls between the major groups in the United States with windows and doors, we may well have started a reconstruction job which portends far more than any of us can guess. I suggest that it has much more meaning than merely the fact that a great many professors are now on cordial speaking terms with a great many bankers and union representatives, and that businessmen and government officials can get together without blasting the pictures off the wall of the meeting room. Indeed, we may be discovering how to forge the links that will hold our country together at a particularly critical moment in history. We may be discovering that freedom and dignity can be preserved far better by partnership than by compartmentalized action. Even more important, we may find in it a most useful lesson in the task of bringing free men together in a common front for winning the peace. For if we have found out that compartmentalization is an outmoded way of life within our own society – in our industries, in our political structure – why can we not say to the rest of the world that it will work among the nations?

The trustees of the Ford Foundation are so certain that absolute top priority must be given to the question of man's relationship to man and the preservation of free peoples and institutions that they have put the resources of that great enterprise wholly into programs aimed at that single grand target. The trustees saw that unless people somehow, some way, found positive means for waging the peace, all other efforts to better the surroundings and the dignity of man would only end up in atomic rubble.

I joined the Ford Foundation because I share that view completely. I came away from two and one-half years with the Economic Cooperation Administration with twin convictions that I hold with all my mind and heart. The first of these is that an enduring peace, built on freedom and justice, can be won if the free people of the world will dedicate themselves unreservedly to the task. My second conviction is that peace can be won only if free people everywhere lock arms so tightly in the common cause that no force can tear them apart. I have called those two statements personal convictions. I want to go further and call them facts, hard facts that you must wrap your minds around. It is horribly strange, but also horribly true, that while there never seems to be too much difficulty about mobilizing nations for war, mobilizing them for peace is quite a different matter. Many people still seem to be making the error of looking on peace negatively as a mere absence of war. But I say to you that unless we consecrate ourselves as wholly to winning the peace as we have, from time to time, consecrated ourselves to military victory, the prospects are dim indeed. Peace has to be worked at, not dreamed about and left to someone else.

M.I.T. Photo

The reason we have to lock arms is simplicity itself. No single nation has the resources to stand up against an onslaught from the Soviet Union and its satellites, not even the United States, mighty though it is. The free nations can win the peace only if they stand together, work together, and wage the peace together. But if we do lock arms and add the resources of Western Europe to those of North America, we will have a commanding advantage over any possible combination of adversaries.

Almost every day I hear or read something which indicates a feeling that Western Europe can be regarded as a relatively unimportant part of the earth, a weak sister with nothing in particular to contribute. To say that such views dismay me is a masterpiece of understatement. Western Europe has a population of 275,000,000 men and women of the same stock, outlook, and background of most of the fine people in these United States. That's 100,000,000 more people than live in this country and Canada put together. I don't want to bore you with statistics, but there are a few typical comparisons I think every American should paste firmly in his hat. The combined coal production of the United States and Western Europe is 965 million metric tons a year. The annual coal production for the U.S.S.R. and its satellites is much less than half as much – 386 million metric tons. Annual power production in the United States and Western Europe together totals 612 billion kilowatt hours. The combined Soviet total is 132 billion kilowatt hours. We and our free neighbors in Western Europe have a crude steel production capacity of 137 million metric tons, against a Soviet total of 34.8 million metric tons. There is more than six times more oil production an-

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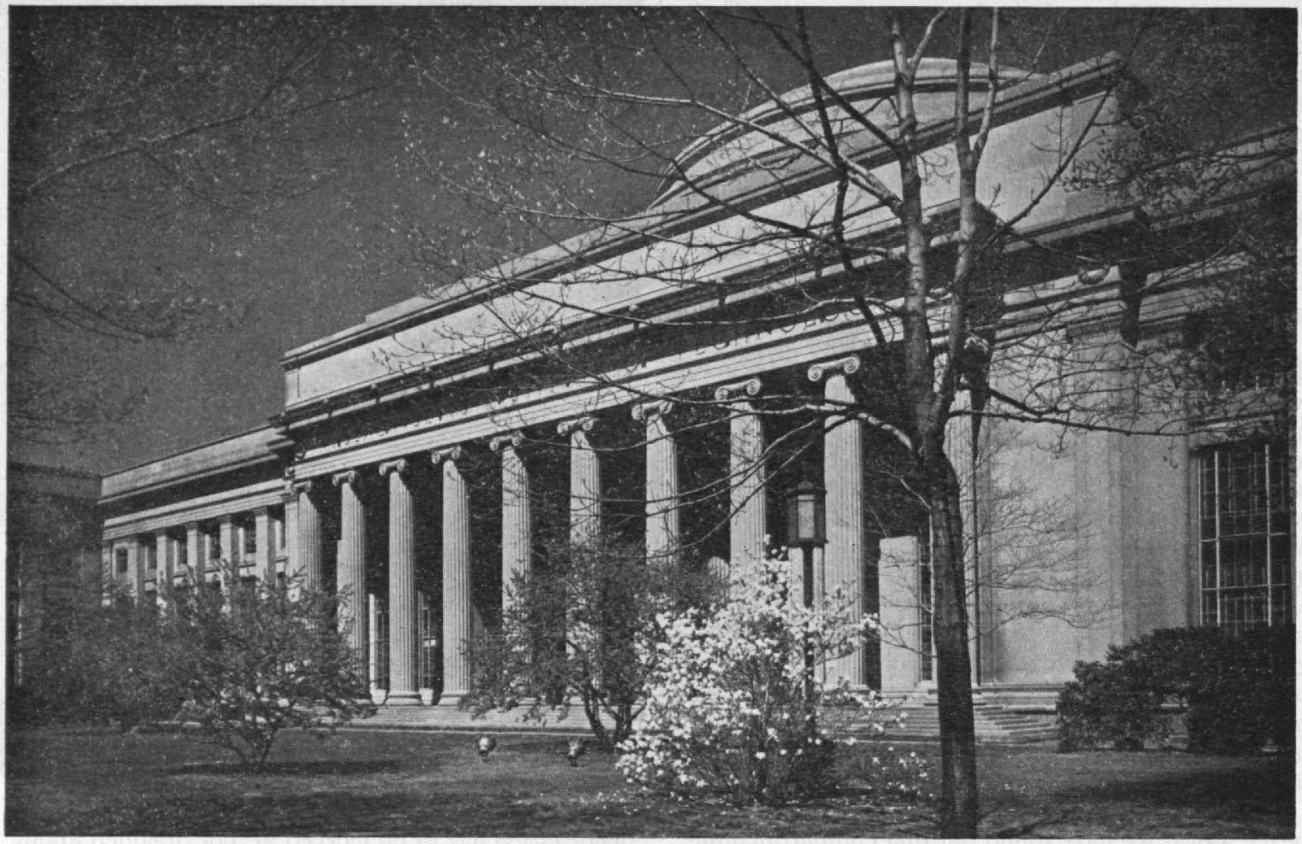


M.I.T. Photo

Character Building—The Job of a Lifetime

The Qualities Which Are Most Valuable in Any Profession Are the Ones Which Cannot Be Bought at Any Price

By HAROLD R. MEDINA

COMMENCEMENT ADDRESS

I GREATLY appreciate the honor of having been selected to address you here today; and I hope that what I have to say may be interesting and helpful. In these difficult and soul-stirring times, it is important to keep our feet solidly on the ground and to concentrate on fundamentals.

When I was a lawyer, particularly toward the end of my career at the bar, I did a good deal of what lawyers call jury work. These trials, to a judge and jury, are exciting affairs: Sometimes the principal figure will be the defendant, charged with some serious crime; sometimes the principal figure will be a witness, whose veracity is under attack. There is almost always some individual who stands in the limelight.

And so I developed a certain technique in my summations which I shall describe as a background for what I have to say here this morning. I would first remind the jurors that most of us go through life in a humdrum sort of way: Nothing spectacular happens to us and we get most of our pleasures and excitement at home with our family, in our business, or in cussing out the politicians. But suddenly, in the most unexpected way, and often through no act or purpose of our own, we may some day find ourselves playing the principal part in one of these great dramas just as is so-and-so here in court today. And if we do, I go on to say, I can tell you now that our whole life will be open to scrutiny and in it will be found a certain unity, a certain gradual development culminating in the occasion or event in issue. Then I used to weave the evidence into a picture of the particular principal figure in an effort to demonstrate either his innocence or his culpability, the fact that he was or was not telling the truth, and so on. The analogy was effective because it was immediately recognized as representing life as it really is; and it served my purpose to get the jurors interested by supposing themselves suddenly subjected to such an ordeal, while at the same time furnishing a rhetorical device for the marshalling of the evidence to support my side of the case.

Yes, no one of us can tell when we may have to meet some crisis, some weighty responsibility, perhaps the duties of some high public office which, viewed from what we know of ourselves today, may

seem almost fantastic. And when such a crisis or such responsibilities come, if they do, you may rest assured that success or failure will depend on the very sort of unity, the very sort of gradual development and growth, of which I speak. You young people cannot know — it is impossible for you now to imagine — what great figures you may, in time, become.

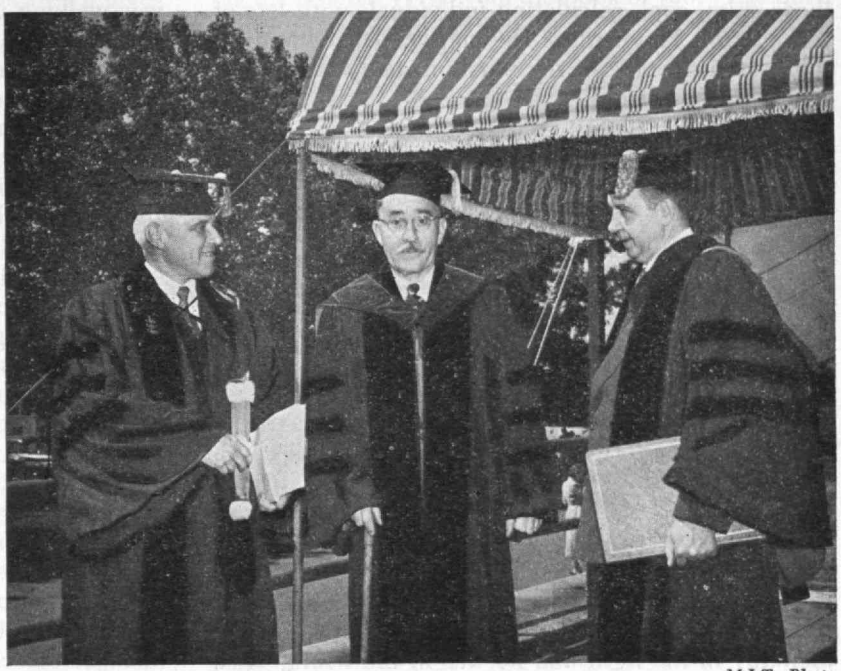
Accordingly, it seems appropriate that I should try to help you consciously to develop your own powers over the years, so that the unity and the gradual development of which I speak may not be the haphazard effect of mere fortuitous circumstance and the accidents of environment. It is important, too, that one should not pay such absolute homage to the itch to get ahead and beat out one's competitors that one forgets the more important spiritual values which may easily get lost in the shuffle.

In developing my subject, I am going to tell you a number of little stories all taken from my own experience; and I do this because I have found that generalities and hypothetical situations never leave quite the same sort of lasting impression as does the recital of things that really happened. I have another reason which I may as well confess at the outset. The subject of character building is a slippery and difficult one. It means so many different things to so many different kinds of people that I must leave a good deal to your imagination. True stories have a way of sticking with us, as I found to be the case when I was a law teacher, and they help us later to formulate principles in language of our own.

When I was a boy, I attended a preparatory school known as Holbrook's Military Academy in Ossining, N. Y. One day a number of us were playing around the gymnasium when one of the boys, who was the leading school athlete, came up and said he had something to show us. He then held out his hand and put a 50-cent piece near the tips of his fingers and, to our amazement, we saw the 50-cent piece turn over and over until it reached the base of his palm, then it turned over and over on its way back again to the tips of his fingers. As far as we could tell it was sheer magic. We could not observe a single motion of his hand; and he did the trick over and over again. Later we found he had been practicing this little stunt for about six months alone in his room. Persistent, persevering effort had made it possible for him to develop the little muscles and nerves on the palm of his hand and the inside of his fingers so that the manipulation we had observed became possible to accomplish.

I do not need to explain to a gathering such as this how it is possible to train one's muscles. I can remember the time when my youngest boy, who was for two successive seasons the intercollegiate pole-vault champion, practiced hand shifts in his room by the hour with a short pole. He did not naturally have much spring in his legs, and he trained and trained with all sorts of special exercises to develop this. We have all seen the members of a gymnasium team performing seemingly impossible feats of muscular control upon the parallel bars. And I think most of us here recognize quite as easily the processes of discipline by which the mind is trained. It is a subtle and elusive procedure, but the results are everywhere manifest and it would doubtless be difficult to find anyone in an academic atmosphere such as this who would deny that perseverance is just as effective in the one field as the other. What I hope to demonstrate is that the building of character and will power responds to the same sort of discipline. Perhaps the process takes a little longer but, fundamentally, it is quite the same.

After I had been teaching for 25 years at the Columbia Law School, I reached the end of my rope. The demands of my professional work and particularly a number of long jury trials, which kept me on the go all day and through a good part of the night, spelled the end of my teaching career. As I approached my last class at the law school, I turned over in my mind what I could say to those boys and girls that would represent the most important lessons I had learned in my experience in life and as a participant in hundreds of court proceedings. After considerable reflection and with illustrations, which I have mostly forgotten now, I told them this: "In the first place, you students have been working hard to get good grades; you know that the best jobs will be available for those who stand highest in the class; and all of your energies have been absorbed in learning the techniques of what is to be your profession. But let me tell you this," I said, "brains are cheap." And truly, so they are. You can always hire some bright person to do a good, technical job. But the qualities which are most valuable in any profession are the ones which cannot be bought at any price; and they are plain, ordinary guts and loyalty. We have heard so much loose talk about loyalty in the last few years that the ordinary garden variety seems



M.I.T. Photo

In reading order are Karl T. Compton, chairman of the M.I.T. Corporation, the Honorable Harold R. Medina, who delivered the commencement address, and President James R. Killian, Jr., at the Institute's 85th commencement.

to have been forgotten. I mean that loyalty to one's college, to one's friends, to one's family, to one's religion; the kind that builds from the ground up and makes loyalty to one's country inevitable and adamantine. I did the best I could to get it into the heads of those students that their success at the bar and their success in life would very largely depend upon a combination of unswerving, unselfish loyalty, and sturdy tenacity and doggedness.

Then I told them something else; that there will be plenty of times throughout life when one is beaten, when one's most cherished hopes are suddenly dashed to the ground and every attendant circumstance makes one feel that it has all been the result of injustice or favoritism or envy or what not. When this happens, I told these students, as it surely will, I want you to remember that America loves a good loser. Just keep your mouth shut and go about your business. No one likes a squawker. The more he squawks and puts the blame on somebody else, the more his listeners suspect that the fault lies with himself. There is little profit in advertising one's own discomfiture.

Now I know what you are thinking. You are saying to yourselves, "What has squawking got to do with character?" And the answer is that it has plenty to do with it as, on a little reflection, you will have to admit. The ability to keep on plugging ahead despite setbacks, discouragements, and downright disaster is no mean asset.

Let me pause here for a brief moment and, by way of footnote, direct your attention to the fact that a persistent following of these little pieces of advice, year after year, will build a lot of character. It will go far to develop the type of man who is a good man to have on your side in a knock-down fight.

It was shortly after this little speech to my last class in the law school that I began to perceive a very serious weakness in my own character. How strange it seems to me that so many people think I am one of those calm, cool, calculating individuals with lots of self-control. The truth of the matter is that I am just the opposite. Some of my bursts of temper have got me into a lot of trouble, too.

When I was a very young man in my twenties, I used to argue a number of appeals before what we New Yorkers call the Appellate Division of the Supreme Court, First Department, which sits in the Appellate Division Courthouse at Madison Avenue and 25th Street in New York City. One day I was arguing a case which involved a man who had fallen overboard and had been sucked under and drowned when the captain of the tug reversed the engines. I had hardly started my argument when one of the judges who was sitting at my extreme left, and who was then one of the more recently designated members of the court, slammed the record down on his desk and said, "There's nothing to this case." Well, I leaned back and let him have a blast that would have taken his whiskers off, if he had had any. It was a stupid thing to do; it resulted in my losing the case; and it did not make the slightest particle of difference that I was fundamentally in the right and he was in the wrong. As a matter of fact, he never forgave me for that outburst. Later on that man became the presiding justice of the court and time and again when I was waiting around for one of my cases to be reached for argument, I did not even dare go out for a smoke for fear that he would suddenly call the calendar and take a submission on me, which he did on one occasion.

Then there was another time when I was lecturing to a great crowd of students preparing for the bar examinations. There must have been about twelve or fifteen hundred of them crowding Town Hall and I was lecturing away when suddenly I looked down, and in about the fourth or fifth row, and right in front of my nose, was a man sound asleep. I jumped down from the platform, ran up the aisle, and took him by the collar and threw him out. At least I threw somebody out. Some 20 years later a man came up to me in the street and shook hands and said: "Don't you remember me? I am the student you threw out of Town Hall way back in 1922." "And, what's more," he continued, "you threw out the wrong man." And I suppose that is just what I did. In all the excitement of my running down the aisle, the fellow who was asleep woke up and I threw the wrong man out.

Well, anyway, I soon began to find out that I would have to control myself, especially when I got into jury trials where one little outburst can have the most serious consequences. And so I worked on myself, year after year. It was pretty tough going, I can tell you. But finally I achieved a measure of success.

Not so many years before I went on the bench, I was assigned as counsel to defend a man named Anthony Cramer, charged with treason against the United States. It was a difficult and distasteful task but I undertook it as a patriotic service. Moreover, as a member of the bar, I was under a duty to accept such an assignment, even though I had to serve without compensation. Lawyers do this sort of thing all the time. This was all during World War II. Cramer had had some dealings with the saboteurs who came over from Germany on the submarines, and public feeling was running pretty high. One day during the trial, when I was walking up the center aisle of the courtroom to the counsel table, a spectator suddenly stood up and spat in my face. I had to do some quick thinking. If the incident became known, it certainly could not help either me or my client; and so, without batting an eye, I walked on up to the counsel table, wiped off my face, and said nothing to anyone about it. I am pretty sure that 10 years before I would have seized the man by the throat and created a terrible rumpus.

Well, that is about all I have to say. These things can only be discussed in the concrete. Generalities are not convincing. What I have tried to do is to indicate to you by these few illustrations what can be done by persistent, unremitting effort. And don't forget this. This self-control business is really more important than all the others put together. There is a certain spiritual quality to self-control that is hard to explain. Indeed, I verily believe that all the other qualities which we commonly think of in the aggregate as "character" stem from the discipline and control of our animal instincts. Only then can we truly appreciate the things of the spirit; only with self-control can we make of ourselves the men we wish to be. A lifetime of this kind of character building will guide the sort of gradual development which results in a unity of which we may, in due course, perhaps feel proud.

Tradition and Progress

Graduates Admonished to "Accept Life Daily, Not As a Cup to Be Drained, but As a Measure to Be Filled"

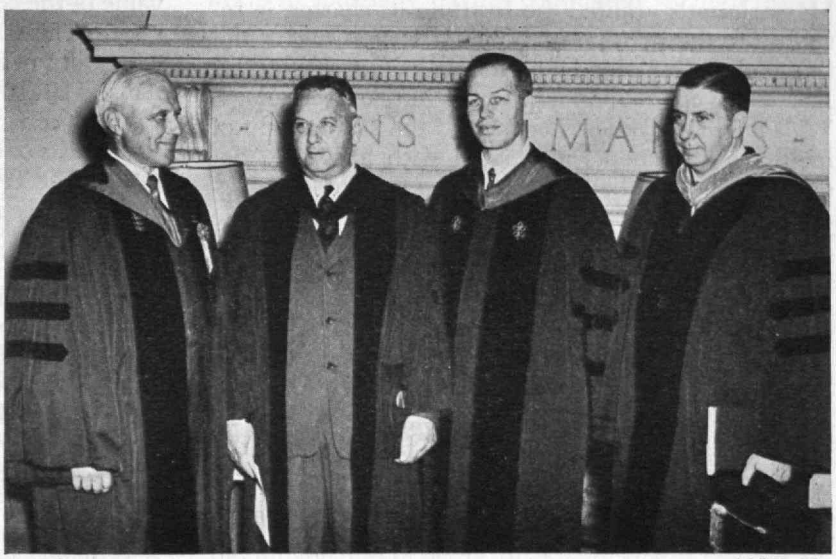
By SIDNEY LOVETT

BACCALAUREATE ADDRESS

WHEN your president asked me to be with you on the occasion of your baccalaureate, I accepted his invitation with unmixed pleasure. My association with the Institute, though not official, has been long and precious. As a boy, I remember the brownstone and brick buildings on Boylston Street. On my way to school in Cambridge I watched the first of these noble halls arise on this side of the Charles River. In that connection I recall public excitement as to the identity of a mysterious Mr. X, who turned out to be the late George Eastman, one of the many benefactors of the Institute. For 13 years I had the honor of serving the Mount Vernon Church, located at the Boston end of Harvard Bridge. In the parish were members of the Technology Faculty and their families; and through the congregation and Young People's Society there was a steady flow of Technology students. I remember when Wallace Ross became director of the Technology Christian Association and it was my pleasure to serve on the board of managers of that organization until, in 1932, I left Boston only to get as far as New Haven. These happy recollections contribute to the pleasure of being here this afternoon.

I have reserved one final and personal association with the Institute for special reference because it gives an unfading significance to all the rest. Everett Moore Baker was just about my dearest friend, and onetime colleague. He entered upon his duties here as dean of students the same year you seniors came to the Institute as freshmen You are privileged to have known him longer and more intimately than any other class; you are the "first fruits," so to speak, of his wise and generous friendship and care. Had he come back from his mission of good will to India last summer, he would have been with you today, and later at your commencement, to wish you Godspeed. You have been instrumental in establishing the Everett Moore Baker Memorial Foundation for the purpose of advancing his ideals and objectives. This, in itself, is a noble and fitting act of devotion. Yet I would further charge you and myself with the greater dedication of ourselves as so many living memorials to a man who was so modest that he never knew how great he was; to a friend who never set any bounds to his own capacity for friendship; to a servant of God and humanity who, in a troubled world, "never turned his back but marched breast forward, never doubted clouds would break, never dreamed, though right were worsted, wrong would triumph."

Let me develop our subject "Tradition and Progress" by relating an incident out of my own experience. During the war years I was exiled from my office, as chaplain, in one of the freshman dormitories on the Old Campus. My quarters became the military P.X., with Coca Cola and Nabs and razor blades on tap instead of religion. With the postwar readjustments my office was restored, the familiar sign, "Chaplain's Office," was replaced on the wall just outside the door, and we were open for business. Well, within 24 hours the sign disappeared. In a day or two it was replaced by a much more imposing board with the familiar legend, "Chaplain's Office." One of my janitor friends said: "You don't expect that to stay there very long, do you?" I said, "No," and sure enough, by the next day it was gone. A few days later the old sign reappeared, very much the worse for its absence. To it was scotch-taped a dollar bill and a sheet of paper, bearing the familiar verse from the Book of Job, "The Lord gave, and the Lord hath taken away." I put the dollar



M.I.T. Photo

Taking part in the baccalaureate service were (left to right): Karl T. Compton; the Reverend Sidney Lovett, chaplain of Yale University, who delivered the baccalaureate address; the Reverend Dana McLean Greeley of Boston's Arlington Street Church, who led the call to worship; and President Killian.

bill in my discretionary fund, and replaced the verse from Job with an appropriate text from Saint Paul's Epistle to the Ephesians: "Let him that stole steal no more." The next morning both sign and inscription were gone. Finally, the very efficient Service Bureau sent around a painter, who inscribed "Chaplain's Office" on the wall, with an arrow pointing in the direction of the office door. The paint was hardly dry before there appeared, taped underneath the legend, a sheet of theme paper on which was written that very familiar Biblical phrase, "O ye of little faith." There was no text with which I could cap that employment of an ancient pronouncement. I thought at the time, and I still think, wittingly or no, it represents a proper judgment upon our generation for our lack of the faith principle that must precede all knowledge. The world convulsions of the last two or three decades have shaken our faith in the past and today they cloud our faith in the future. "We see not our signs, there is no more any prophet: neither is there among us any that knoweth how long." Yet, past and future meet in every step that we take, in every breath we draw. As exiles or as explorers we are involved sooner or later in the tide rip of contemporary life; for as David Livingstone was wont to say, "Standing still is the one thing more impossible than going forward." Hence it is incumbent upon you and me, as men who are in the way of being educated, to get this binocular view of past and future into some kind of immediate focus.

In a little book entitled *Recollections,* Lord Dunsany tells of traveling an old Roman road to Tunisia. He came upon an ancient stone marker by the wayside and turned aside to read the inscription. There were two inscriptions. The first read: "We are of the tenth legion." The second read: "We are of the tenth legion also." Between these two inscriptions and their dates was a gap of several centuries. Together, they just about spanned the duration of the Roman imperium in that part of the world. Separately, they witnessed to men in widely different times who served in the same legion under the aegis of the same imperial tradition. In the year 1861, the Commonwealth of Massachusetts granted the Institute its charter, in response to the petition of William Barton Rogers and those who were joined with him in his desire to establish in this community a great institute of technology. Well might President Rogers and the small group of faculty and students associated with him have declared: "We are the builders of the Institute." Subsequent events have eloquently justified their faith. The brook became a river and the river became a sea as thousands of students have received here the benefits of a scientific and technical education. From our lips today, as those who are the latest to come stand in this great succession, swells the glad rejoinder, "We are the builders of the Institute also."

Gilbert K. Chesterton once suggested that to respect tradition is but to extend the vote to our ancestors. Something of a traditionalist himself, Mr. Chesterton is here content to stress the more negative aspect of the matter. The positive attitude is to discover tradition to be a kind of cement that binds persons together in the fabric of life. Tradition holds us together in families. Tradition binds us together in religious bodies. Tradition it is that unites us in the fellowship of a college or an institute. Tradition it is that seals our citizenship in a particular state or nation. But there is one final and more inclusive word to be said. Tradition it is that gives the individual a sense of loyalty to all mankind, a consciousness of being bound in the bundle of life with all our fellow men. This is the trademark of the humane man or woman, who feels himself or herself personally implicated in the weal and woe, the hopes and fears, the glory and shame of our common humanity.

Now, like the state or the machine, tradition is a good servant but a bad master. It serves, as we have just suggested, as a kind of cement to bind us together as a family or community or nation or race. But when we confuse tradition with the edifice of life itself, and to the exclusion of the element of growth and development, then we are guilty of mistaking the means for the end and trouble is afoot. There have always been two ultimate groupings of humanity. There are people who are primarily fascinated by the future, and there are other people who are persistently attached to the past. One group lives on the assumption of change; the other pins its efforts to the maintenance of some *status quo.* Society seems able to reproduce a sufficient number of both types to maintain a fairly constant struggle between the two. This conflict, whether on the political or the religious level, so often results in a narrow and sterile partisanship which obscures the real issues of life. Such a condition makes it more imperative for men and women to whom tradition is something powerful to bind together the past with the present and the future, since these are still essential to progress and to the development of new forms of human life and thought. If I could put this notion into a kind of talisman for your remembrance, it would be this: Give the best that you have received from the past to the best that you may come to know in the future. Accept life daily, not as a cup to be drained, but as a measure to be filled with whatsoever things are honest, pure, lovely, and of good report.

I have met an increasing number of undergraduates the last two or three years who seriously doubt the value of the educational process in which they are engaged. This mood is, in part, the result of the unsettled conditions of the world. I may be frank and say that it is also a kind of occupational disease quite prevalent in a strictly liberal arts college or university. There, the end results of education are not always as clear as they must be at Technology, where education is definitely and honestly regarded as a means to making a livelihood in one or another of the scientific professional fields. Let no one from the more venerable and ivied houses of learning ever look down their intellectual noses at you who have made the great discovery that true knowledge involves a direct participation in that which is known. Yet I would remind you this afternoon that making a living is best understood as a part of the more important business of creating a life. Here at the Institute your primary preoccupation with the prose of life, facts that can be weighed and measured, should not preclude your increasing concern, here and outside, for the poetry of life, which comes from the interpretation of these facts in terms of meaning and value. I conceive it to be the combined operation of

(Concluded on page 520)

M.I.T. Photo

Qualities Expected of the 1951 Graduate

Benefits of Advanced Education Impose Professional Responsibilities for Dealing with the Human Side of Living in a Highly Industrialized Epoch

By JAMES R. KILLIAN, JR.

FAREWELL ADDRESS

IN concluding these exercises in happy observance of your graduation, I wish to speak a personal word in behalf of the Corporation, the Faculty, and all other members of the staff who have known you and worked with you. In a very personal sense we are reluctant to see a class take its leave, just as everyone is loath to see friends and colleagues depart. In a professional sense we are happy to see you go in the same way that the coach, proud of his team and confident in its training, welcomes the opportunity to send it into play. These are the mixed feelings we experience in bidding you farewell as students and in welcoming you into the distinguished company of M.I.T. graduates.

You, too, doubtlessly have mixed feelings as you close this chapter of your career. I am certain that many if not all of you leave Technology with a feeling of relief and release. That is a natural and understandable reaction after a period of sustained pressure. Discharge through a nozzle, if I may inject a thermodynamic note, is usually accompanied by a drop in temperature. It is my prediction, however, and certainly my hope, that as your experience and accomplishment at the Institute recede into the past, your attachment and affection will grow. As you pass the milestones of your fifth reunion, and your tenth, and on, you will have begun to acquire the distinctive patina of the Technology man, a patina compounded of pride in somehow having conquered its high standards, of loyalty, not of the rah-rah kind, but of quiet affection, and of a sense of assurance in belonging to a team that has had a winning streak for over 80 years.

An occasional Technology man, I might add, doth boast too much of having been graduated, and would have his listeners believe that Technology is all and more that our favorite cheer says it is, that only mental giants can survive the fire. This has led, in some quarters, to the Institute's acquiring a reputation for being tougher than it really is. The true state of affairs is illustrated by a remark that Horace S. Ford, former Treasurer at the Institute, once made to the son of an Alumnus, a prospective freshman, who was fearful of making the grade: "Son, what are you worrying about; your father got through, didn't he?"

In speaking of your status as an Alumnus, it is appropriate to point out that one of the distinctive features of the American college, in contrast to colleges and universities in many other countries, is the continuing participation and interest in its affairs by its alumni. In this regard M.I.T. is strikingly fortunate. Our Alumni help in selecting the students who come here; they share in the government of the Institute by

membership on the Corporation and on its Visiting Committees; through 80 or more clubs and nearly 70 active class organizations, they maintain contacts with each other throughout the world; they frequently help the young Alumnus to get a job or to adjust himself to a new environment; they seek and themselves generously give funds to support and strengthen the Institute; and they jealously guard its interests and its reputation.

Some of the reasons for this family feeling I have already suggested, but there is another and more fundamental one. Our educational institutions, along with our churches, are expressions of the nation's highest ideals and hopes. They were founded by unselfish men for altruistic purposes; they have been maintained and developed by a whole succession of people who have given more than was expected of them. They have come to be recognized as cases, where, under conditions more ideal than in the community at large, young men can freely develop those attitudes of mind and spirit so essential to our democratic society. The nation conceives of our colleges as communities held together by a humane and tolerant spirit of mediation, reconciliation, and reverence for the individual – communities governed by a passion for truth, a preoccupation with ideal objectives, and freedom of thought and speech. It conceives of them as seedbeds of democracy.

Such institutions could not have been created except by altruistic men, and, by the same token, this institution and the many others throughout the land command the active interest and support of altruistic people. The nation expects our colleges to be the citadels of its ideal aims; the perpetuators of its standards, its heritage, and its promise. Similarly, the nation expects, and has a right to expect, special qualities in the graduates of these institutions. It expects the competent use of the training received, of course, but it expects a great deal more than this. It expects good judgment and self-discipline, moral integrity, and active citizenship.

With Opportunity Comes Obligation

From those who are professionally trained, as in science, engineering, architecture, and management, the country expects something more. It expects that the professional man be motivated by the professional ideal of ministering to the public rather than by the limited objective of working solely for himself. The country desperately needs engineers and scientists at the present time; but it even more desperately needs engineers and scientists who not only can increase our standard of security and our standard of living, but also can increase our standard of living together, men who have courage and understanding to tackle the overriding human problems of today.

Our own colleague, Professor Emeritus Warren K. Lewis, '05, of the Department of Chemical Engineering, whose influence as a great teacher enriches us all, has pointed out in one of his eloquent statements about the obligations of the engineer that, in the early days of our country, the primary function of the engineer was to increase production, while today the engineer not only must do this but also must deal effectively with the human problems of industry which are currently its most important and difficult problems.

I cite these qualities expected of the college graduate, especially the graduates of an institution of this kind, not because you are unaware of them, but rather as an expression of our faith that you, as nearly as any group of college graduates, personify these qualities and have an opportunity to demonstrate them wherever you may be. For this reason, we who remain feel better about all the uncertainties and difficulties facing you who are graduated today. Whether you serve your country in the military services or in civilian posts, whether you pursue your career in peace or in cold or hot war, we are confident that you will serve in the great tradition of this institution and in the manner of men competent and anxious to work for a higher standard of living together, for an uncompromising defense of our free society, and for a free and peaceful world. If we in the United States are to be successful in our uncompromising hostility to Communism, we must have these qualities of faith and commitment and idealism in our citizens.

Needed: A New Perspective

I once heard of a perfectly sane man who was seen standing on his head in front of a table on which there was a bowl of fruit. This man, who was an artist, explained his novel position by saying that he had been looking at the bowl of fruit for so long from the same angle that he was no longer really seeing it. He was merely seeing what his mind had already accepted as being what a bowl of fruit looked like. So it is with your point of view about your career, or M.I.T., or the world about you. What I have been trying to suggest is that all of us need to stand on our heads occasionally to get a different view. We can, if we so choose, take a limited view by making up our minds that we are living in a world that offers little opportunity for individual achievement. If we have that picture in our minds, we can easily go through life finding evidence to prove that we are right and justifying to ourselves a life of soured outlook and small achievement. Or, if we feel that life would have no meaning for us unless we set high goals and find opportunity to advance toward those goals, then this very attitude will help us create a world in which we will find the opportunities we seek.

One final comment on your point of view as M.I.T. graduates. Going through M.I.T. may be likened to climbing a mountain. You plod up the trail with head down, watching only the way underfoot. At long last you reach the tree line and then you pause and look outward, suddenly discovering that your world has changed, that its ravines, ridges, and contours begin to shape up, and the path ahead is apparently leading somewhere.

And so today you reach the tree line of your career with a sweeping view spread out before you. If the peak is still obscured by clouds of uncertainty, you have reason to be sure that you can still scale it. We who have been your companions and guides up to this point send you along up the increasingly difficult trail, hope that the view will steadily widen, and bid you good climbing and Godspeed.

Commencement and Alumni Day, 1951

Godfrey L. Cabot, '81, takes a bow at the Alumni Day luncheon in celebration of his 70th anniversary of graduation from "Boston Tech."

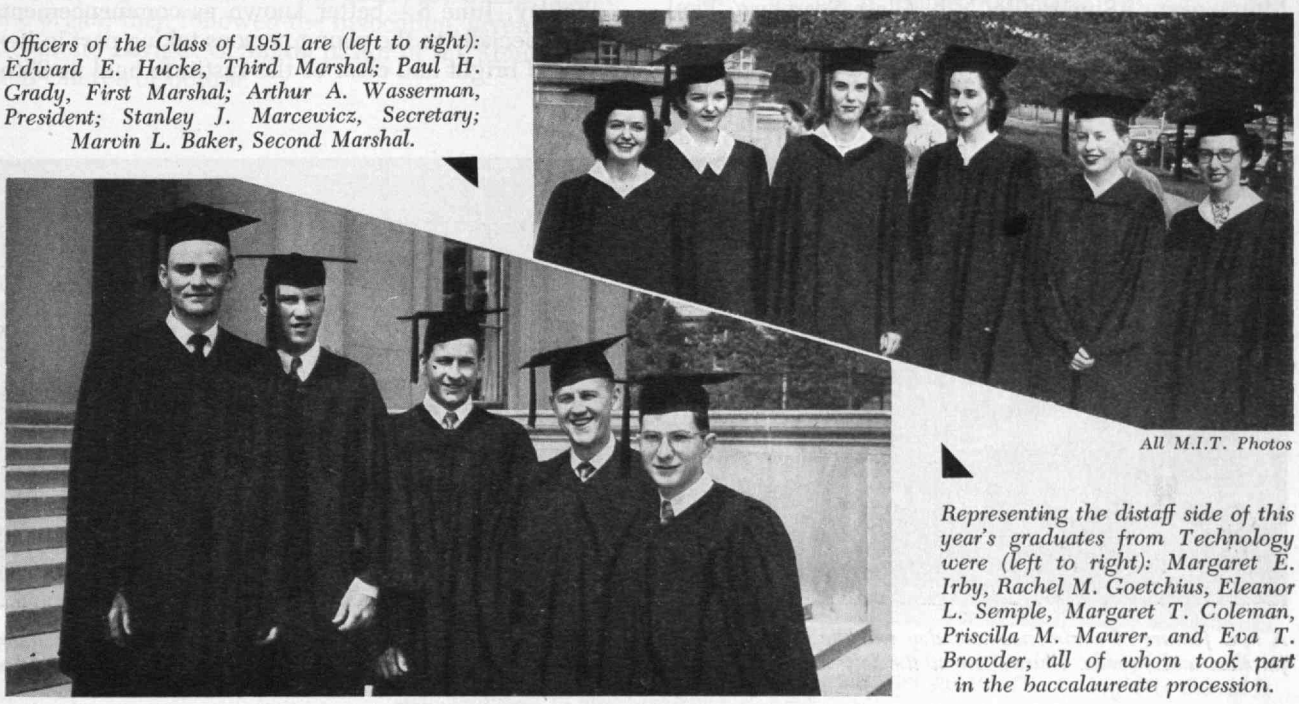
EVENTS of commencement and Alumni Day, 1951, were marked by lofty idealism as James R. Killian, Jr., '26, President, reported on the explosive progress and development which have taken place at M.I.T. during the postwar period, and as the Honorable Harold R. Medina, Judge of U. S. District Court for Southern District of New York, delivered to the graduates an exceptionally inspiring commencement address on character building. But the tones of national uncertainty and indecisive leadership were also reflected in the year-end activities. In an effort to counteract inaccurate and misguided statements of overcrowding in the engineering profession, Karl T. Compton, chairman of the M.I.T. Corporation, President Killian, and Thomas K. Sherwood, '24, Dean of Engineering, on separate occasions called attention to the nation's pressing need for technically trained personnel – a need which could well be described as hysterical. In outlining the merits of the Marshall Plan at the Alumni Day Banquet, Richard M. Bissell, Jr., Deputy Administrator of the Economic Cooperation Administration, could not refrain from calling attention to the frustration and the defensive position which characterize so many in the nation's capital.

This year the events at the end of the school year included several innovations. For the first time in many years, the traditional Class Day exercises in Walker Memorial were omitted. An attractive and highly successful feature, to the 2,000 persons who participated, was the informal buffet luncheon in Du Pont Court for graduates, their families, and friends – immediately following the commencement exercises in Rockwell Cage. Alumni Day, 1951, was without the symposium of informative papers which were features of many past Alumni gatherings in Cambridge. Instead, President Killian presented his annual message on the "State of the Institute," following the informal luncheon in Du Pont Court. This precedent made it possible for wives and friends to join M.I.T. Alumni in obtaining firsthand information regarding progress at the Institute during the past school year. As a final innovation, at the Alumni Day Banquet Marshall B. Dalton, '15, general chairman of the Development Program, presented the final report on the Committee on Financing Development, whose program exceeded by nearly 30 per cent the $20,000,000 goal which had been set in 1948 to fund the Institute's independence.

Senior Week Activities . . .

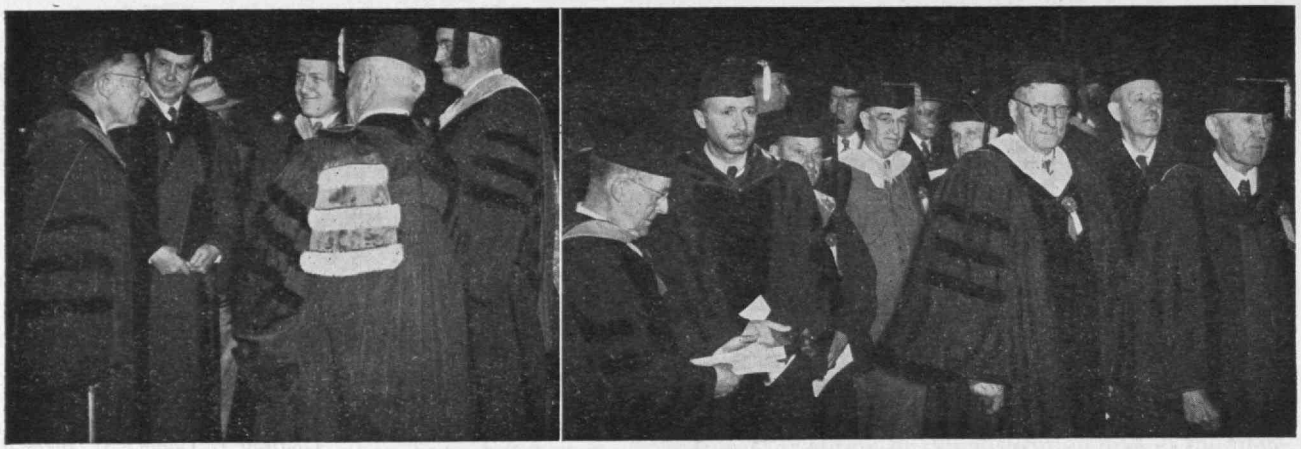
For the graduating class, Senior Week marked the activities during which those who had spent four years at the Institute would be able to gather together for the last time, as a complete group, to engage in lighthearted entertainment at the end of student ca-

Officers of the Class of 1951 are (left to right): Edward E. Hucke, Third Marshal; Paul H. Grady, First Marshal; Arthur A. Wasserman, President; Stanley J. Marcewicz, Secretary; Marvin L. Baker, Second Marshal.



All M.I.T. Photos

Representing the distaff side of this year's graduates from Technology were (left to right): Margaret E. Irby, Rachel M. Goetchius, Eleanor L. Semple, Margaret T. Coleman, Priscilla M. Maurer, and Eva T. Browder, all of whom took part in the baccalaureate procession.



Left: *Prior to commencement exercises, Judge Harold R. Medina enjoyed an informal chat with President Killian, Thomas K. Sherwood, '24, Dean of Engineering, Karl T. Compton (back to camera), and George R. Harrison, Dean of Science.* Right: *Members of the Corporation in academic robes are (left to right): Walter Humphreys, '97, secretary of the Corporation; Pietro Belluschi, Dean of the School of Architecture and Planning; C. George Dandrow, '22; Luis de Florez, '11; Harold Bugbee, '20; Vannevar Bush, '16; Thomas D'A Brophy, '16; A. Warren Norton, '21; Harry J. Carlson, '92; Professor Emeritus William Emerson; and Godfrey L. Cabot, '81.*

reers of successful accomplishment. The events of Senior Week began with the annual senior ball at the Hotel Statler on Friday, June 1, and continued until commencement on Friday, June 8. On Saturday, June 2, the graduating class enjoyed its senior cruise in Boston Harbor, which event was followed by an outing for the seniors and their lady guests at Crane's Beach in Ipswich on June 3. Rockwell Cage was the scene of the senior banquet on Tuesday, June 5.

Baccalaureate Service . . .

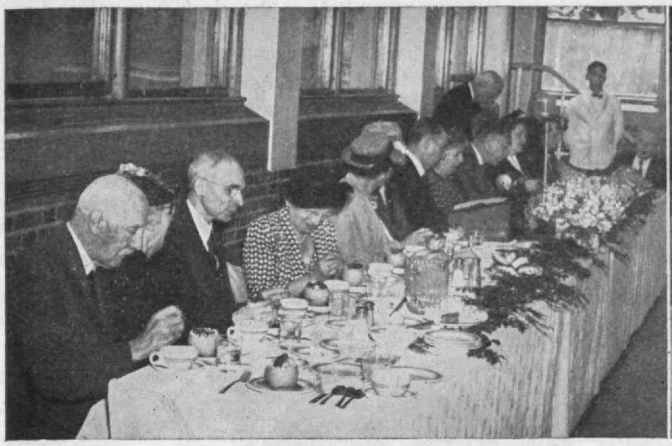
When, in cap and gown, the graduates had been photographed on the steps of Building 10 in the bright, warm sunlight of Thursday, June 7, the members of the Class of 1951, led by class officers, marched down Memorial Drive to Walker Memorial to attend their baccalaureate service. The procession along Memorial Drive was led by Arthur A. Wasserman of Brooklyn, N.Y., Class President; Stanley J. Marcewicz of Somerville, N.J., Class Secretary; Paul H. Grady of Watertown, Mass., First Marshal; Marvin L. Baker of Passaic, N.J., Second Marshal; and Edward E. Hucke of Kansas City, Mo., Third Marshal. Following in close order, the feminine contingent in the procession included Margaret E. Irby, Rachel M. Goetchius, Eleanor L. Semple, Margaret T. Coleman, Priscilla M. Maurer, and Mrs. Felix E. (Eva T.) Browder.

With Philip M. Richardson, '26, at the organ, the Reverend Dana McLean Greeley, minister of the Arlington Street Church in Boston, led the call to worship, and President Killian gave the Scripture reading from I Corinthians 13:1-13. With members of their families and key figures in the Institute's Faculty and Administration, the Class of 1951 filled Walker Memorial to listen to an inspiring address by the Reverend Sidney Lovett, chaplain of Yale University. His address, "Tradition and Progress," appears on page 479 in this issue of The Review.

Commencement . . .

Friday, June 8 — better known as commencement day, especially to the young persons taking part in it— beamed bright and clear as the Institute held its 85th

A new feature of commencement day was the informal buffet luncheon in Du Pont Court, attended by the graduates with their families and friends. Illustration at the left shows a group entering the tented dining area. At the right, Dr. Compton makes a few informal remarks to friends of the graduates.



Seated at the head table at the President's Luncheon, for members of the 50-year Class and honored guests, were (left to right): Godfrey L. Cabot, '81; Mrs. Theodore H. Taft; Professor Herbert B. Dwiht, staff; Mrs. Vannevar Bush; Mrs. Harold R. Medina; Philip W. Moore, '01; President Killian; Mrs. Philip W. Moore; Judge Harold R. Medina; Karl T. Compton, standing and speaking with Vannevar Bush, '16; Mrs James R. Killian; Mrs. Herbert B. Dwight; and Theodore H. Taft, '01 (at end of table). Right: *A smaller group at the same luncheon included, in clockwise order, Mrs. John A. Lunn; Mrs. Julius A. Stratton; Julius A. Stratton, '23; Charles A. Record, '01; Mrs. Albert W. Higgins; and Albert W. Higgins, '01, addressing A. Warren Norton, '21.*

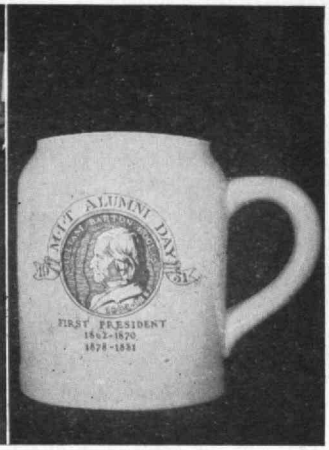
commencement exercises. For members of the M.I.T. Corporation who attended breakfast at Dr. Compton's residence at 100 Memorial Drive, Cambridge, events of the day began at the early hour of 8:00 A.M. Two hours later, the Cambridge Armory, opposite the main M.I.T. buildings on Massachusetts Avenue, was the scene of robing for all who took part in the commencement procession.

Led by John A. Lunn, '17, President of the Alumni Association, the academic procession left the Cambridge Armory and entered nearby Rockwell Cage at 10:30 A.M. with guests of honor, members of the M.I.T. Corporation, members of the Class of 1901, officers of the Class of 1926, Faculty members, and last, but most important, the 1,178 graduates who were to receive 1,211 degrees and 274 reserve commissions in the United States Army and Air Force.

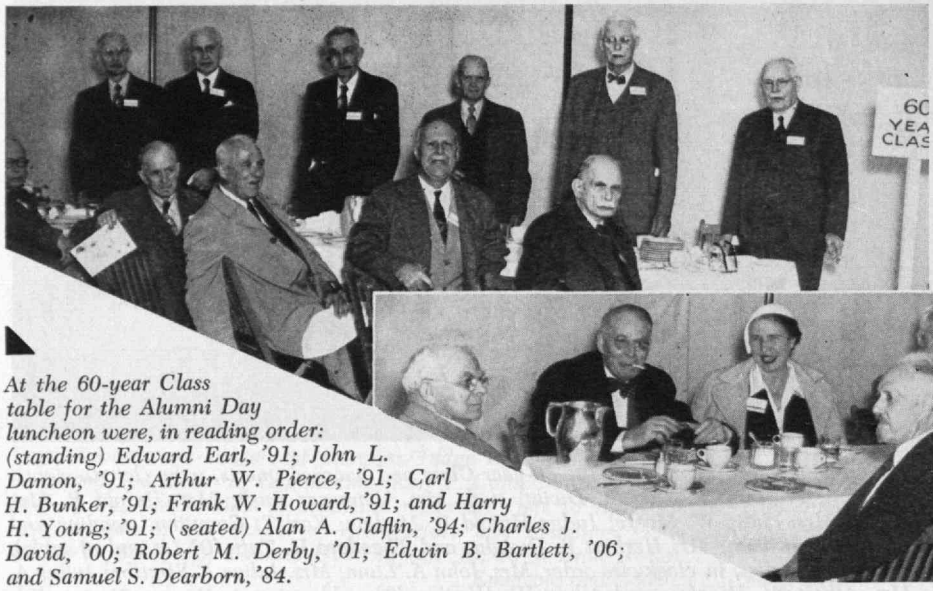
Ceremonies were opened with the singing of the "Star Spangled Banner," with Harry U. Camp, '18, at the organ; then followed the invocation, given by the Reverend Dwight C. Smith, pastor of the Mount Vernon Church of Boston.

The inspiring commencement address to the graduates was delivered in a direct, forthright, human manner by the Honorable Harold R. Medina, Judge of United States District Court for Southern District of New York, who, three days later, was appointed by President Truman to succeed Learned Hand on the United States Court of Appeals for the Second Circuit. Judge Medina's address, studded with personal anecdotes, appears on page 476 of this issue of The Review under the title "Character Building – The Job of a Lifetime." His remarkable patience and fastidious objectiveness in the trial of Communist agents (covering a period of nine months) assured Judge Medina of a sympathetic and friendly audience. But it was the warm personality and simple directness of a man of outstanding character that caused his audience of 5,000 persons to acclaim the address by rising to their feet at its conclusion.

Major Lyman R. Blake, Associate Professor of Air Science and Tactics, administered the oath of office to 55 members of the Officers' Reserve Corps and to another 119 members of the Air Force Reserve. Karl



School and class loyalty is reflected by Carole A. Clarke, secretary of the Class of 1921, whose automobile license plate is shown at the left. Center illustration shows a group of Alumni picking up their advance registration tickets. On the right is the 1951 stein, designed, as usual, by Henry B. Kane, '24.



Below: *In clockwise order, from end of table, are: D. Leighton Ordway, Albert W. Higgins, Mrs. Higgins, Edwin F. Church, Jr., William E. Farnham, Edward Seaver, Willard W. Dow, W. Cornell Appleton, Mrs. Nutter, Alfred DeW. Nutter, and Norman A. Dubois—all members of the Class of '01 at the Alumni Day luncheon.*

At the 60-year Class table for the Alumni Day luncheon were, in reading order: (standing) Edward Earl, '91; John L. Damon, '91; Arthur W. Pierce, '91; Carl H. Bunker, '91; Frank W. Howard, '91; and Harry H. Young; '91; (seated) Alan A. Claflin, '94; Charles J. David, '00; Robert M. Derby, '01; Edwin B. Bartlett, '06; and Samuel S. Dearborn, '84.

T. Compton, chairman of the M.I.T. Corporation, made the presentation of degrees, and Major General James P. Hodges, Commanding General of the First Air Force, made the presentation of the commissions to R.O.T.C. students.

The Review is proud to print, on page 481 of this issue, President Killian's farewell address to the graduates of 1951.

The 1,178 candidates for degrees represented the second largest class ever to graduate from the Institute, being exceeded only by the Class of 1950 in which 1,225 candidates received degrees. At this year's exercises, the candidates received a total of 1,211 degrees, since 29 received both the S.B. and the S.M. degrees and four received two S.B. degrees. Doctorates went to 82 persons; of whom 43 received the Ph.D. and 39 took Sc.D. degrees. Advanced engineering degrees went to 53, and a total of 253 master's degrees were awarded. Bachelor's degrees totaling 823 were also presented.

Thirteen young women, the largest number graduated for several years, were among the candidates for degrees. Mrs. Felix (Violet B.) Haas of Cambridge and Emily L. Wick of Youngstown, Ohio, received Ph.D. degrees; their fields were mathematics and organic chemistry, respectively. Beverly J. Beane of Fitchburg, Mass., Anne A. Gillis of Boston, and Marion E. Ford of Littleton, Mass., received master's degrees in aeronautical engineering, chemistry, and city planning, respectively. Bachelor's degrees were conferred upon Anne C. Bickford of Cambridge, Eleanor L. Semple of Rumford, R.I., Rachel M. Goetchius of Quincy, Mass., Priscilla M. Maurer of Margaretville, N.Y., Mrs. Felix E. (Eva T.) Browder of Brookline, Mass., Margaret T. Coleman of Cambridge, Margaret E. Irby of Ponca City, Okla., and Maria-Luise R. Azzarone of Forest Hills, N.Y.

Commencement Day Luncheon . . .

Following these heart-warming exercises, a commencement luncheon in Du Pont Court for seniors and their guests marked a pleasant and most welcome innovation in this year's events. A buffet luncheon was served to approximately 2,000 members of the graduating class and their families in the first affair of this kind which provided graduates their last opportunity to say farewell before embarking on careers in science, engineering, architecture, administration, public health, or perhaps in academic halls. At the conclusion of the luncheon, Mr. Wasserman and Dr. Compton (forsaking his official role this year for that of proud parent of an M.I.T. graduate) addressed the graduates and their friends. Shortly thereafter, scores of cameras clicked in the Great Court to catch many of

Left: *At the head table at the Alumni Day luncheon were (left to right): Paul M. Chalmers, Assistant Director of Admissions; Robert M. Briber, President of the Class of 1952; Mrs. John M. Nalle; Theodore H. Taft, '01; Mrs. Paul M. Chalmers; and Georges F. Doriot.* Right: *Mrs. John A. Lunn; Philip W. Moore, '01; Mrs. Harold H. Burton; Karl T. Compton; Mrs. Albert Chambon; and John A. Lunn, '17.*

the fresh crop of M.I.T. Alumni in cap and gown and armed with documentary evidence attesting to their professional competence. Omitted this year were the traditional Class Day ceremonies of accepting the graduating class into the Alumni Association of M.I.T. – with the passing of the beaver ring to the officers of the new Senior Class. But no one could doubt that the new graduates were as loyal in their support of their alma mater as any of their forerunners whose departure from M.I.T. has been customarily and officially marked by Class Day exercises.

As the graduates and their families partook of luncheon in Du Pont Court, President Killian was host at the luncheon for the guests of honor and the 50-Year Class, which was held in the Everett Moore Baker House. Long in tradition is the practice of paying special recognition to members of the 50-year Class, whose numerous years of achievements and positions in life may well be pointed out to the graduates as matters to emulate. As a group, this Class indeed represents the "Elder Statesmen" of past generations of college graduates. But the 50-year Class was counted as merely a happy, pleasant group of young people to Godfrey L. Cabot, '81, a member of the M.I.T. Corporation celebrating the 70th anniversary of his graduation from M.I.T. Dr. Cabot is also a member of the Alumni Council, and at those meetings, which he nearly always attends, his sharp wit and keen observation have not often been outmatched by others who are decades his junior.

As final conclusion to the events of commencement day, President and Mrs. Killian – with Dr. and Mrs. Compton, and Mr. and Mrs. Lunn in the receiving line – held a reception for seniors and their guests in Walker Memorial. Each of the Institute's courses had its "recruiting station" at one of the stately columns in Morss Hall where professional, or family, talk could be centered around course activities. The program called for dancing, and an excellent orchestra was on hand. But so well attended was the reception that sparse space of Walker's smooth floors remained available for that scheduled activity.

Honorary Secretaries Meet . . .

At 4:30 P.M. on Sunday, June 10, some 200 Honorary Secretaries and members of the Institute's family held their annual meeting and dinner at the Braeburn Country Club in Newton. Throughout the years, since the Institute has had an able corps of mature Alumni

The Honorable Harold H. Burton, son of Dean Burton, President Killian, and Mrs. Harold H. Burton at dedication exercises naming the new dormitory for the late Alfred E. Burton (shown in the oval inset) who served as the first dean of students between 1902 and 1922.

serving to interview applicants for admission, the dinner meetings of the Honorary Secretaries have become an increasingly important part of the events associated with commencement and Alumni Day. As in the past, this year the meeting was characterized by hard work, good fellowship, and pleasant sociability.

As chairman of the meeting, Julius A. Stratton, '23, Provost of the Institute, gave advance notice of several new posts which have been created at M.I.T. He recalled the appointment of Walter H. Gale, '23, as Institute Secretary (Technology Review for June, page 410); announced the appointment of Ralph T. Jope, '28, to head the permanent Development Office; and reported that Thomas P. Pitré, Dean of Freshmen, had accepted additional responsibilities and would fill a new post as director of student aid. Both of these appointments are recorded in the Institute Gazette section of this issue.

B. Alden Thresher, '20, Director of Admissions, was invited to address the Honorary Secretaries on problems which the Institute is encountering in recruiting new students. Professor Thresher opened the discussion by explaining why M.I.T. has the problem of recruiting students, when the Institute has limited enrollment, by pointing out that the objective of the Admissions Office is not primarily to obtain more stu-

Also at the Alumni Day Luncheon, left to right across both illustrations, were: Albert Chambon, Consul General of France; Mrs. Karl T. Compton; Justice Harold H. Burton; Mrs. James R. Killian, Jr.; Alfred T. Glassett, '20; Mrs. Philip W. Moore; Godfrey L. Cabot, '81; Mrs. Felix A. Burton; Julius A. Stratton, '23; Mrs. Georges F. Doriot; Mrs. Theodore H. Taft; and John M. Nalle, '20, chairman of the Alumni Day luncheon.

dents, but to improve the caliber of freshmen entering M.I.T. Professor Thresher reviewed the program which the Admissions Office is following to reach this objective, with competition from other colleges. Increased travel in which members of that office have engaged, made it possible for M.I.T. personnel to visit some 400 high and preparatory schools last year in making personal contact with 2,600 students. Increased awards to freshmen who merit scholarships are now making it possible for some students to attend M.I.T. who might otherwise be prevented from so doing by reason of the high cost. But most of Professor Thresher's talk centered about a tentative proposal to supplement the very effective and valuable work which the Honorary Secretaries are carrying out, and he invited full discussion on this point.

In the last year, the Admissions Office has given consideration to augmenting the 275 Honorary Secretaries by enlisting the aid of a select group of

An informal reception was held at the president's house and garden on the afternoon of Alumni Day.

Alumni who would be willing and able to interview high and preparatory school students desiring to study at M.I.T. Adequate contact with such students is now possible in the large metropolitan areas, but it is felt desirable to develop better contact with the Institute in small towns and rural areas. The Honorary Secretaries can play a major and exceedingly important role in training entrance counselors whose selection could be greatly facilitated by co-operation from M.I.T. Alumni Clubs throughout the country, since M.I.T. club members have knowledge of local alumni personnel and educational conditions. Honorary Secretaries from various parts of the country entered into a full discussion of this proposal.

Following dinner, President Killian called upon several Honorary Secretaries, especially those from distant points, to say a few words; and Dr. Compton spoke on the need, particularly during the present national emergency, to increase the supply of scientists and engineers. He pointed out that the need for technically trained personnel was almost hysterical in certain fields, and that the normal postwar demand for engineers was likely to be several times the number which would be graduated during the next three or four years. The importance of counteracting the Department of Labor's erroneous estimate of overcrowding in the technical professions was emphasized.

Alumni Day—June 11 . . .

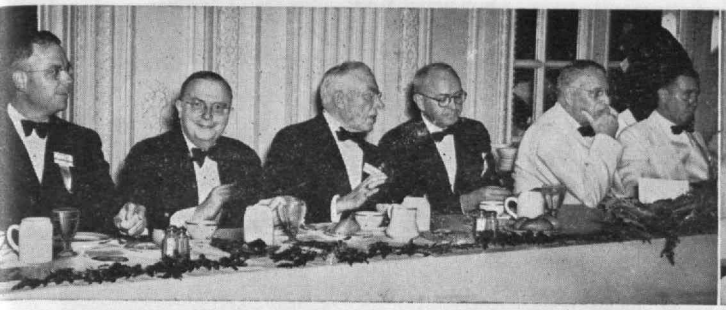
Topcoats were in order on Alumni Day, Monday, June 11, when more than 1,000 Alumni returned to M.I.T. to take part in departmental forums and reunions, to listen to the dedication of the Alfred E. Burton House, to partake of the informal buffet luncheon in Du Pont Court at which President Killian presented his "State of the Institute" address, to attend a reception at the President's House, and finally to conclude the day's events at the Copley Plaza Hotel in Boston for the popular Stein-on-the-Table Banquet.

Long tables in the lobby of Building 7, efficiently manned by personnel from the Alumni Office, facilitated registration for the newcomers and those who had registered in advance. Between 10:30 A.M. and noontime, departmental reunions and forums were held by 14 of the Institute's 20 courses, and these provided opportunity to renew acquaintances and to learn of recent progress in the departments.

Dedication of the Burton House . . .

Last year the Institute acquired title to the Riverside Apartment Hotel on Memorial Drive, about three blocks west of Massachusetts Avenue. This five-story structure has been completely remodeled and serves as the newest and largest of the Institute's dormitories. In simple and effective ceremonies which took place at 11:30 A.M., this new dormitory was dedicated and renamed the Burton House, "in honor of Alfred Edgar Burton, professor of topographical engineering, 1882 to 1922, and first dean of the Institute, 1902-1922, founder of student government and the dormitory system, a man beloved by every student and alumnus during his years at the Massachusetts Institute of Technology." Participants in the dedication ceremonies, which were attended by members of Dean Burton's family, were President Killian, Dr. Dana L. Farnsworth, Acting Dean of Students, and Nicholas Melissas, '52, chairman of the Dormitory Committee. The Honorable Harold H. Burton, Associate Justice of the Supreme Court, and son of Dean Burton, received from President Killian a diptych containing the in-

Members of Dean Burton's family were among the honored guests at the Alumni Day luncheon. In clockwise order, beginning at opening at near corner of table, were: Michael Demetrios; Hans Peterson; William Braillard; A. B. Demetrios; Mrs. F. B. Braillard; A. R. Burton; Mrs. George Demetrios; Dana L. Farnsworth, Acting Dean of Students; George Demetrios; Mrs. Farnsworth (partly hidden); Frederick G. Fassett, Jr., director of publications; Mrs. George R. Harrison; Mrs. A. R. Burton; Mrs. Fassett; Ellen Fassett; and George R. Harrison, Dean of Science and newly elected Honorary Member of the Alumni Association.



Honored guests at the Stein-on-the-Table Banquet included (left to right, across both panels): Allen Latham, Jr., '30; H. E. Lobdell, '17; Rudolf F. Haffenreffer, '95; Marshall B. Dalton, '15, recently elected Honorary Member of the Alumni Council; Albert W. Higgins, '01; James R. Killian, Jr., '26; Karl T. Compton; Richard M. Bissell, Jr.; David A. Shepard, '26; Philip W. Moore, '01; and Alfred T. Glassett, '20.

scription quoted above, which also appears on a bronze tablet in the entrance of Burton House.

Luncheon . . .

At 12:30 P.M., Alumni congregated in Du Pont Court for the buffet luncheon, protected against cool winds and the threat of rain by tents and canvas side walls. Since Alumni Day, 1935, when the Institute embarked upon its annual Alumni Day reunions, these informal luncheons (inaugurated in 1936) have been an important and delightful part of the day's events. Again this year, as during the past 16, former classmates could get together for an informal gathering; they could reminisce about their days at the Institute, or concern themselves with the futures of their sons, or daughters, who had taken part in the commencement exercises a few days before. They could, and some did, take pains to call on a favorite professor to show that the intellectual guidance of a former day was not without recognition and present-day appreciation. The younger classes could look forward to future success in professional and family life, and members of older classes could contemplate their thinning ranks with the satisfaction of having lived their years in accomplishment.

The outdoor addresses which followed the luncheon were an innovation this year. Presiding at this new event was Mr. Lunn, 1950–1951 President of the Alumni Association, who introduced Alfred T. Glassett, '20, President-elect of the Alumni Association, and other distinguished guests.

Albert Chambon, Consul General of France, honored Dr. Compton by conferring upon him the distinction of Officer of the Legion of Honor. In making the presentation, Monsieur Chambon said:

> In a world where misunderstandings are many, he [Dr. Compton] has done much to create an atmosphere of mutual comprehension. He has sponsored the exchanges between our two countries of technicians and scientists. He has not only created this common front of scholars but carefully and competently guided the activities of the high spheres in which they work. He has also played an outstanding role, in the past years, in the forging of those ties of friendship that bring nations into close harmony of spirit. The French Government in honoring him recalls also the eminent services that he rendered in the defense of its country during the first world war. Finally, France wishes to honor Dr. Compton who, as a great American scientist and leader, has been a most distinguished benefactor of the human cause.

Dr. Compton's response, first in French and then in English, expressed his happiness in receiving the distinction and acknowledged the debt which this country owes to French education. He recalled that the concepts in technical education which led to the creation of M.I.T. could be traced back 150 years to the establishment of Ecole Polytechnique in Paris.

President Killian established a new precedent by delivering his "State of the Institute" address as a conclusion to the outdoor events of the informal luncheon. In years past, this important presidential message has been delivered at the Stein-on-the-Table

Tables for the 25- and 50-year classes were well attended at the Alumni Day Banquet. At one Class of '26 table were (named in clockwise order, beginning at left foreground): George W. Wardner, Dominico Sicari DeAmicis, Martin J. Bergen, Edward N. Roberts, William W. Donnell, Robert T. Dawes, Charles S. Draper, Alfred H. Dolben, William F. Rivers, George Warren Smith, and Chenery Salmon, all of the Class of 1926. For the 50-year table, in the same order, were Ralph C. Robinson (back to camera), George V. Sammet, D. Leighton Ordway, John Boyle, Jr., L. Herbert Bigelow, Theodore H. Taft, Anna B. Gallup, Grace Macleod, Norman A. DuBois, and Edwin F. Church, all of the Class of '01.

Of several tables occupied by the Class of 1936, this one included (in clockwise order, from opening at center foreground): Edward S. Halfman, Martin A. Gilman, Richard K. Koegler, Lawrence G. Peterson, Ariel A. Thomas, Mrs. George E. (Alice Hunter) Kimball, Edward B. Rowe, Jr., Richard Halloran, Roman I. Ulans, and Gerard Chapman.

Banquet where attendance was necessarily restricted to M.I.T. Alumni because of limitations of banquet facilities in Boston.

State of the Institute . . .

Some of the items on which President Killian reported have already been mentioned in the pages of The Review. For this reason the following condensation of his address is edited to emphasize those topics which have not been previously treated in these pages, or which, for one reason or another, might well be re-emphasized. Said Dr. Killian:

In making my annual report on the state of the Institute, I am confronted with two problems. The first is a problem of selection, because so much has happened at the Institute that it is impossible in a limited time to give you an exhaustive report. The second problem is what kind of reference point or landmark to take in order to indicate that the ship is moving in the right direction. Perhaps both of these problems can be solved by drawing some quantitative comparisons of the M.I.T. of 1951 with the M.I.T. at the end of World War II. What has happened to our institution in the period of reconversion, reconstruction, and cold war in which we have been living since 1946?

Quantitative comparisons show clearly that we witnessed a great surge of energy and change at the Institute. Take, for example, our physical facilities. Since the end of the war we have constructed, or started the construction of, over 1,000,000 square feet of space – an increase in the size of our plant of approximately 50 per cent. New living and recreational facilities for our students include: Westgate and Westgate West for married students; and Baker House and Burton House, two dormitories which have supplied accommodations for nearly 1,000 additional students to our housing system. We have built the Rockwell Cage, the greatest single addition to our athletic facilities in the history of the Institute, and we have made available an additional three acres of playing space.

Faculty and staff members who attended the Stein-on-the-Table Banquet (beginning with foreground opening, and in clockwise order) included: Frederick Hartwell, James W. F. MacDonald, Horace S. Ford, Delbert H. Rhind, Dana L. Farnsworth, Gordon S. Brown, '31, Thomas P. Pitré, Richard F. Koch, Albert W. Bridges, and Frank M. Baldwin.

To our educational and research facilities we have made many notable additions, of which the largest, and in many ways the most significant, has been the Charles Hayden Memorial Library, which is serving so effectively our program in general education. In addition there has been the construction of the Gas Turbine Laboratory, the Hydrodynamics Laboratory, which was dedicated on June 4, the Supersonic Wind Tunnel, and the Alfred P. Sloan Building. The Sloan Building will fill many important needs for the Institute in addition to being the center for the School of Industrial Management. It will house, for example, a Faculty Club, a really adequate and attractive center for our staff. The adaptation of the top floor of the Sloan Building and of the penthouse will be carried out this summer and early fall, and it is our hope that our Faculty Club will be available for use by late fall. In addition to the Sloan Building, we have during the past year started the construction of the Metal Processing Laboratory, made possible by a gift of $1,000,000 from Alfred P. Sloan, Jr., '95, and the John Thompson Dorrance Laboratory for Biology and Food Technology, made possible by the gift of $1,000,000 from the Campbell Soup Company. It is our hope that both of these laboratories will become available during the coming academic year.

To the structures which I have mentioned should be added the new 12,000,000-volt electrostatic generator, now being constructed; the Barta Building, several blocks up Massachusetts Avenue which houses a great new computing machine; the Lexington Field Station; and the Whittemore Buildings, just to the north of our present campus, which will be used for sponsored research. Still other pieces of property have been acquired by the Institute as investment properties, including the R. H. White Building located on Memorial Drive at the end of Boston University Bridge, and the Tech Block on Massachusetts Avenue across from our main buildings.

The increase in physical plant in this postwar period has been reflected, of course, in the value of our plant and equipment. As we went into World War II, this value totaled about $16,750,000. It now stands at $28,000,000. In the last normal year before the war the Institute's operating budget was about $3,750,000. In the year just coming to a close, this budget will exceed $23,000,000. Over this same period the Institute's total invested funds will have grown from $36,000,000 to $54,000,000; its academic staff from 681 to 1,300; and its student body from 3,100 to 5,100.

Such are some of the comparisons which show the almost explosive growth and development of the Institute since the war. Such comparisons, however, are important only in the degree in which they suggest what has

(*Continued on page 506*)

THE INSTITUTE GAZETTE

PREPARED IN COLLABORATION WITH THE TECHNOLOGY NEWS SERVICE

M.I.T. Photos

Recent administrative appointments at the Institute give to Thomas P. Pitré, Dean of Freshmen (left), *new responsibilities as director of student aid; to Professor Nathaniel H. Frank,* '23 (center), *the post of acting head of the Department of Physics; and to Professor John C. Slater* (right), *the distinction of being the first Institute Professor in a newly created post which provides unusual freedom for study and research at the Institute, unhampered by departmental boundaries.*

Institute Professorship

For more than 20 years Head of the Department of Physics at Technology, John C. Slater has been appointed to the newly created post of Institute Professor, President Killian announced shortly after Alumni Day.

Professor Slater, who had indicated a desire to be freed from administrative responsibilities in order that he might concentrate more intensively on research and teaching, will continue to be attached to the Department of Physics, but will be free as an Institute Professor to work throughout Technology unhampered by departmental boundaries. His primary concern in the immediate future will be with matter in the solid state, a field in which he has for many years been an outstanding authority; and he will be active in the co-ordination of investigations throughout the Institute having to do with the structure of matter.

To facilitate his entry into his new responsibilities, Professor Slater has been granted a leave of absence for the coming year to carry on research at Brookhaven National Laboratory on Long Island, of which M.I.T. is one of the sponsoring institutions.

Professor Nathaniel H. Frank, '23, has been appointed acting head of the Department of Physics, to serve until Professor Slater's successor has been selected. Professor Frank has had a distinguished teaching and research career in the Radiation Laboratory at the Institute. He is coauthor, with Professor Slater, of *Introduction to Theoretical Physics* and has also written two introductory volumes on college physics.

Director of Student Aid

Thomas P. Pitré, Dean of Freshmen at the Institute, has been appointed to the new administrative post of director of student aid, as announced by President Killian. While continuing to serve as dean of freshmen, in his new post Dean Pitré will also be chairman of the Faculty Committee on Student Aid.

In making the announcement, President Killian said that the general objective of the director of student aid and his organization will be to formulate and recommend policy governing the Institute's student-aid and student employment program, and to coordinate and direct the management and awarding of scholarships and loans.

The new plan is expected to provide individual, tailor-made aid to students, some of whom would benefit most from part-time employment, and others from a combination of a job and a loan. Scholarship aid available to qualified students might also be supplemented by loans or part-time student employment to those requiring all three types of assistance, including scholarship aid. It will be within the discretion of the director to effect combinations of the various forms of student aid best calculated to serve the interests of the individual student.

Mr. Pitré has been a member of the Institute's staff since 1920. Born in 1898 in Waterbury, Conn., he received his early education in the public schools of Seymour, Conn. He was graduated *cum laude* from Amherst College in 1919 with the degree of bachelor of arts. Before coming to M.I.T. he served for a year as an instructor at Phillips Andover Academy.

M.I.T. Photo

Ralph T. Jope, '28

. . . will continue to serve The Technology Review as its able business manager in addition to his new duties as director of the Development Office.

Jope Heads Development Office

At the Alumni Day Banquet on June 11, Ralph T. Jope, '28, was named by President Killian to the post of director of the M.I.T. Development Program Office. This office, which served as headquarters for the M.I.T. Committee on Financing Development during its recent $20,000,000 drive, is now established on a permanent basis.

Mr. Jope, who acted as assistant to the general chairman, Marshall B. Dalton, '15, during the intensive phase of the fund-raising activities of the past two years, will have direct responsibility for the Institute's long-range development program. The basic objectives of this continuing development program are to increase the Institute's capital resources and to insure adequate annual funds to support current operations in the fields of education and research. This broad program of developing the financial resources of the Institute will involve the combined efforts of its Administration, Alumni, and Corporation. As director of the Development Office, Mr. Jope will be responsible for the tactical planning and co-ordination of the fund-raising activities of these various groups, and for the implementation of basic policies established by them.

Mr. Jope was graduated from M.I.T. in 1928 and is business manager of The Technology Review, a post which he will continue to hold He is a former treasurer of the M.I.T. Alumni Association, and from 1934 until 1947 he was a member of the Advisory Council on Athletics at Technology.

Edward L. Moreland: 1885-1951

Edward L. Moreland, '07, retired Executive Vice-president of the Institute, died suddenly at his summer home in West Falmouth, Mass., on June 17, at the age of 65.

Dr. Moreland was a native of Lexington, Va., and was educated at Johns Hopkins University and M.I.T. In addition to his association with the Institute, he was for many years a member of the engineering firm of Jackson and Moreland. During the years of his devoted service to the Institute from 1935, when he became head of the Department of Electrical Engineering, until his retirement as executive vice-president of the Institute in 1950, Dr. Moreland's wide experience in engineering and his characteristic thoroughness and well-considered judgment were of enormous value to Technology in almost every phase of its administration. Having served as head of the Department of Electrical Engineering from 1935 to 1938, Dr. Moreland was then appointed dean of engineering and held that post until his appointment as executive vice-president in 1946.

In addition to many important wartime activities, he served from 1942 to 1945 as executive officer of the National Defense Research Committee in the Office of Scientific Research and Development. During this period he was a consultant to the secretary of war and was assigned to the South Pacific theater as chief of the Scientific and Technical Advisory Committee. After the surrender of Japan he was head of the Scientific Intelligence Survey sent to Japan to study the Japanese organization for scientific war research. On this mission he was accompanied by Dr. Compton. For his services he was awarded the Medal of Freedom and this was followed by the Medal for Merit, which was bestowed by President Truman in 1948. During World War I he served as a captain and later as a major of engineers in the American Expeditionary Force; and, following the Armistice, he was appointed head of a mission to determine German indemnity for war damage in Belgium.

Dr. Moreland was active in Alumni affairs, having served as president of the Alumni Association for the year 1935-1936.

M.I.T. Photo

Edward L. Moreland, '07

. . . distinguished Alumnus who served the Institute as head of the Department of Electrical Engineering, dean of engineering, and executive vice-president.

Council Business

Sitting for its 283rd meeting on May 28, the Alumni Council devoted a substantial portion of its deliberations to end-of-the-year business activities. Presiding at the meeting, held in the Graduate House, was John A. Lunn, '17, President of the Alumni Association, who announced the results of the spring election of the Alumni Association (see The Review for June, page 411) and introduced the Alumni officers for the

coming year, as well as two honorary members and nine past presidents of the Association.

Visits to 14 Technology clubs, as far away as Rochester, N.Y., and Pittsburgh, Pa., by 16 members of the Council and M.I.T. staff, were reported as having been made during May. In an afternoon meeting on May 28, the Executive Committee nominated personnel for various committees, and the slate was formally approved by a vote of the Council. President Lunn also announced that Marshall B. Dalton, '15, had been elected the fifth honorary member of the Alumni Council, although Mr. Dalton found it impossible to attend the Council meeting to witness the wholehearted enthusiasm elicited by this report.

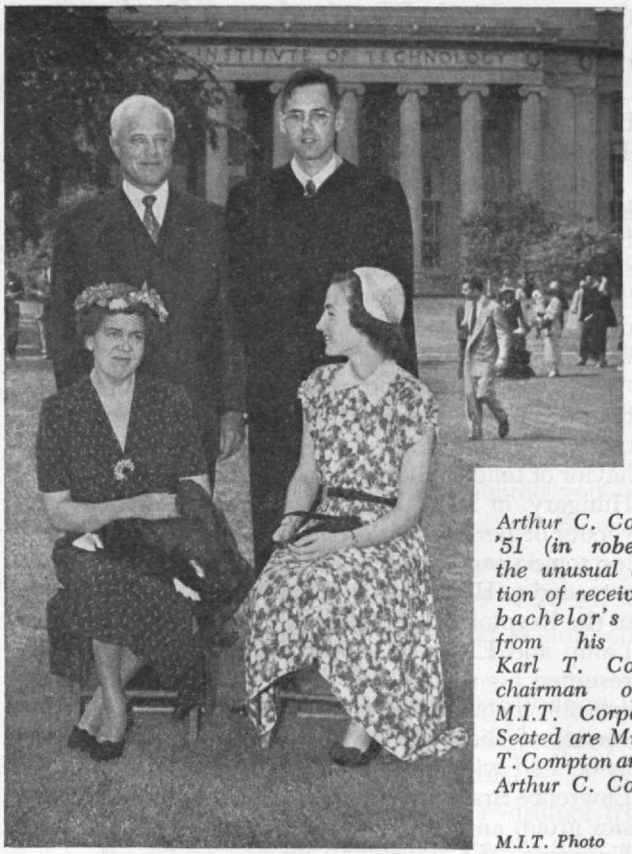
Bringing the monthly message from the M.I.T. Administration was President Killian, who announced to members of the Council the recent appointments of Walter H. Gale, '29, as Secretary of M.I.T., Ralph T. Jope, '28, as head of the permanent Development Office, and of Frederick G. Fassett, Jr., as director of publications at the Institute, all of which appointments are recorded in the June issue or this month's issue of The Review. President Killian also introduced Professor Gale who spoke briefly of the work which he envisions for his new post.

Upon introduction by President Lunn, Professor Rolf Eliassen, '32, of the Department of Civil and Sanitary Engineering, spoke of the extensive research project now being conducted for the Atomic Energy Commission in the Institute's William Thompson Sedgwick Laboratories of Sanitary Science. This project involves the removal of radioisotopes from water by procedures within the realm of possibility of municipal and industrial water supplies. Professor Eliassen also discussed the various sources of radioactive contamination, the nature of the contamination, and the problem it may create in water supplies. It is common for the waterworks engineer to remove 250 of the 300 parts per million of undesirable substances in water. However, with radioactive contaminants, low orders of magnitude never before encountered are involved. The recommended permissible level of radioiodine, for example, is less than 3×10^{-10} part per million. In the new addition to the sanitary engineering laboratories at M.I.T., some of the answers are being provided for questions regarding the removal of hazardous contaminations of radioactivity from water supplies.

Humanities Scholarships for Engineers

THE creation of the new School of Humanities and Social Studies at M.I.T. has stimulated the establishment of scholarships, valued at $500 each, to be awarded to two seniors whose records indicate exceptional promise. The scholarships were established this year by Harry A. Kuljian, '19, prominent Philadelphia engineer and head of an internationally-known engineering firm. The purpose of the scholarships is to assist the recipients to broaden their education in the field of the humanities and social studies, in order that they may gain a better understanding of human relations in applying their technical training.

The first awards of the Harry A. Kuljian Prize Scholarships for seniors are to be made to William P. Chandler, '52, a junior in the Department of Chemical Engineering, son of Mr. and Mrs. James K. Chandler of Cleveland, Ohio, and to Herbert M. Teager, '52, a junior in the Department of Electrical Engineering, son of Mr. and Mrs. Stephen R. Teager of Brooklyn, N.Y.



Arthur C. Compton, '51 (in robe), had the unusual distinction of receiving his bachelor's degree from his father, Karl T. Compton, chairman of the M.I.T. Corporation. Seated are Mrs. Karl T. Compton and Mrs. Arthur C. Compton.

M.I.T. Photo

In announcing the scholarships, Mr. Kuljian said: "The establishment of the School of Humanities and Social Studies marks a great forward step, and a much needed one, in the training of our engineers. The opening up of vast new opportunities all over the world makes it essential for the American engineer to have a general education in world affairs, traditions, economics, and human relations. Otherwise he cannot cope with many of the problems he must solve in other countries — problems which go beyond purely technical matters. . . . The scholarships . . . are intended to help promising engineering students to round out their training along these lines."

The tradition of American opportunity is vividly borne out in Mr. Kuljian's career. He arrived in America as an Armenian immigrant, and worked his way through schools until he had completed his professional training at Technology. After many years of diversified engineering experience, Mr. Kuljian established his own firm in 1930, and his organization has designed and constructed many large projects.

Death Takes Mrs. Maclaurin

MRS. RICHARD C. MACLAURIN, widow of President Maclaurin, with whom she shared profound devotion to the Institute and unstinting endeavor in its behalf, died on May 31 at Phillips House, Boston. Funeral services were held in King's Chapel on June 4.

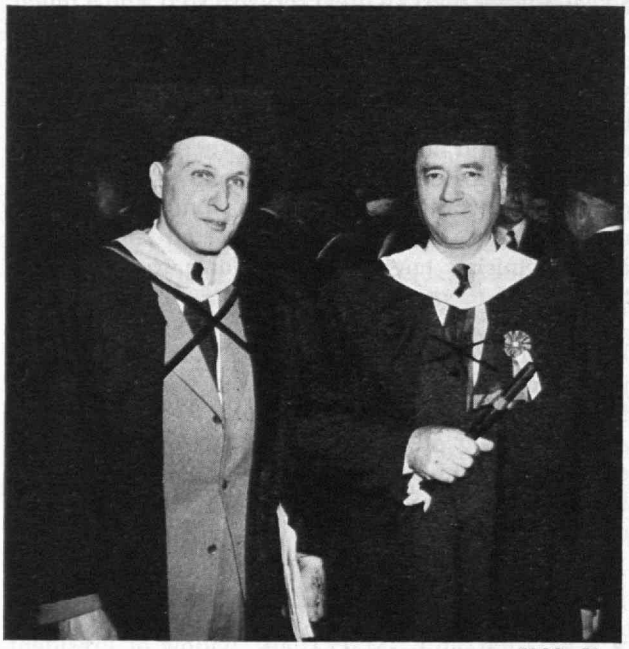
Orowan Made Westinghouse Professor

THE appointment of Professor Egon Orowan as George Westinghouse Professor of Mechanical Engineering at the Institute has been announced by Thomas K. Sherwood '24, Dean of Engineering.

Dr. Orowan joined the Faculty of the Institute last June, and he now succeeds Professor William R. Hawthorne, '39, who has held the Westinghouse chair since 1948. Professor Hawthorne is resigning to accept the post of the Hopkinson and Imperial Chemical Industries Professorship of Applied Thermodynamics at Cambridge University in England.

One of the outstanding authorities in the general field of physics of metals, Dr. Orowan has made numerous contributions of great significance to the behavior of solids under stress. He was born in Budapest, Hungary, in 1902 and studied at the Technical University of Berlin-Charlottenburg, where he continued for some years as a teacher and research worker. He returned to Hungary and for some time was in charge of the Krypton Gas Works of the United Incandescent Lamp and Electric Company. In 1937, Dr. Orowan resumed his research work on the mechanical properties of metals in the physics department of the University of Birmingham in England. In 1939 he was associated with the Cavendish Laboratory under Sir Lawrence Bragg, where he was head of the metal physics group and reader in the physics of metals in the University of Cambridge.

Dr. Orowan is regarded as unique in his ability to combine fundamental knowledge of physics and metallurgy with the point of view of the mechanical engineer. He has received many honors, including the Thomas Hawksley Gold Medal of the Institution of Mechanical Engineers in 1945, and election as a Fellow of the Royal Society of London in 1947.



M.I.T. Photo

Representing the Alumni Association in the commencement day academic procession on June 8, were (left to right) Donald P. Severance, '38, Secretary and Treasurer, and John A. Lunn, '17, 1950-1951 President of the M.I.T. Alumni Association.

Albert H. Wiggin: 1868-1951

ALBERT HENRY WIGGIN, life member of the M.I.T. Corporation and financier who helped build the Chase National Bank into one of the world's largest commercial banks, died on May 21 at his summer home in Greenwich, Conn., at the age of 83.

Born in Medfield, Mass., on February 21, 1868, Mr. Wiggin received his early education in the Boston public schools and was awarded the LL.D. degree from Middlebury College, Kenyon College, and Columbia University. He began his financial career as a bank clerk in 1885 in Boston, was an assistant national bank examiner of the Boston district between 1891 and 1894, and became assistant cashier of the Third National Bank and later vice-president of the Eliot National Bank in Boston. He went to New York in 1899 as vice-president of the National Park Bank and joined the Chase National Bank as vice-president in 1904, subsequently becoming president and chairman of the board. He retired in 1933. For more than a quarter of a century, during World War I and the early depression years, Mr. Wiggin played a leading role in the expansion of the Chase National Bank into an international banking institution.

Mr. Wiggin was a director of many large corporations, a trustee of Middlebury College, and member of Two Hundred Fifty Associates of Harvard Business School. He became a life member of the M.I.T. Corporation in 1933.

Faculty Members Visit Japan

AT the request of the Supreme Commander for the Allied Powers, the American Society for Engineering Education and the Unitarian Service Committee, Inc., have jointly organized a Commission on Engineering Education to visit Japan this summer. Fifteen Americans – including four members of the Institute's Faculty – representing the principal areas of engineering education, will leave for the Orient in early July to consult with the Ministry of Education of the Japanese Government as well as with educators and administrators of engineering colleges in Japan. The Commission's tentative itinerary includes Tokyo, Hiroshima, Osaka, Kyoto, Fukuoka, Sendae, and Sappora.

Professor Harold L. Hazen, '24, Head of the Institute's Department of Electrical Engineering, is chairman of the Commission which expects to visit technical universities and institutes in Japan. Education in science and engineering in Japan has been undergoing a number of important changes since the end of World War II. In this transition, there has been a marked tendency to follow educational policies and practices which have been developed in the United States, particularly with respect to the growing cooperation between American industry and institutes of technology. This situation will receive particular attention when members of the Commission confer with leaders in Japanese technical education during the summer.

In addition to Dr. Hazen, the 15 persons appointed by the Committee on International Relations of the

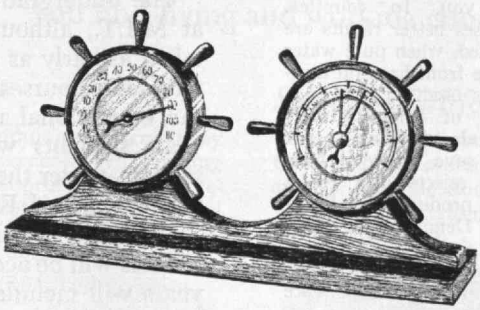
(Continued on page 496)

BUSINESS IN MOTION

To our Colleagues in American Business . . .

There is a well-known maker of thermometers, barometers, hygrometers and clocks which has been a Revere customer since 1885. You might suppose that when two companies have been doing business that long, some 66 years, they would be so close that there would be little that either could contribute to the other. Yet both of us recently learned something, which shows how wise it is to avoid taking things for granted.

During the course of a call on the customer, a Revere salesman was told that some difficulties were being experienced with the stamping and drawing of brass into cases and bezels. The Revere Technical Advisory Service was requested to investigate, and made a thorough study of the metal being used, and of factory methods and tools. The inquiry was, of course, conducted with the full consent and cooperation of the customer, who was just as eager as we were to know why, after so many years, the metal he was buying did not seem to give the usual results.



The Technical Advisory Report went into considerable detail. In broad terms, it found that such troubles as puckers, orange peel, and flare were due to a combination of factors, including composition of the brass, its temper, the design of the dies, and the lubricant used on them. New standards were set up for metal specification, covering alloy, temper, gauge. Although Revere does not design dies for fabricators, we made some suggestions for the consideration of the customer's designers.

After studying the report, the company decided to put these Revere recommendations to the proof of actual trial. It was after the correctness of our suggestions had been demonstrated that Revere received a letter of thanks, ending with these sentences: "We are extremely grateful for this information, and it represents a splendid job and one of great value to us. If all our suppliers of other materials had extended to us the type of service we have had from Revere through the years, we would have had far fewer manufacturing problems."

For several years Revere has been saying in this space that suppliers generally are glad to collaborate with their customers as does Revere. Revere considers trouble is a fine introduction, and its solution the beginning of an enduring business relationship. So do other companies in other industries, though some may take a little prodding. After all, it is a supplier's business to know his materials, as well as to make and ship them. Any company worth doing business with spends a lot of time and money learning as much as possible about its goods. When you buy, you pay for not merely so many pounds or feet or gallons or pieces or parts, but also for know-how, intelligence, information. You might as well obtain all you pay for, even if you have to dig a bit to get it. Indeed, it has been our observation that sometimes the information and collaboration that are not itemized on the bill are worth as much, if not more, than the materials themselves. So we again recommend that you take your suppliers into your full confidence, and let them work with you on problems concerning your use of their goods.

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(Continued from page 494)

American Society for Engineering Education will include three other members of the Institute's Faculty: Professor Emeritus Robert S. Williams, '02, of the Department of Metallurgy, Professor Albert G. H. Dietz, '32, of the Department of Building and Engineering Construction, and Rogers B. Finch, '41, Assistant Professor of Textile Technology and director of the Slater Memorial Research Laboratory at the Institute.

Course for Science Teachers

PLANS for a joint five-year program aimed at increasing the number of broadly trained teachers of science and mathematics at secondary schools, have been completed by M.I.T. and Harvard University. Under the new curriculum, beginning next September, young men and women will be trained in both Cambridge educational institutions for teaching science and mathematics in high schools and junior colleges. Their course will lead to the degrees of bachelor of science in general science at M.I.T. and master of arts in teaching at Harvard University.

The undergraduate phase of the project is largely at M.I.T., although some Harvard courses may be taken as early as the third year. Thereafter, students will take courses at both institutions and draw on the educational resources of both. During the fifth year, students will teach part time at local high schools, under the direction of the faculty of the Harvard School of Education.

Qualified graduates of high schools and preparatory schools will be accepted for the project. Their first two years will include the same program as taken by all other Technology students, which comprises courses in the humanities and social sciences in addition to basic work in science and mathematics. After receiving a solid foundation in mathematics, physics, chemistry, and biology, each student will further emphasize one of these major fields. At the same time, he will be able to take courses in other scientific fields under a flexible program adapted to his individual interests. The student's professional studies at the Harvard Graduate School of Education, beginning in the third year, will train him in the history and philosophy of education, education psychology and measurements, and the teaching of mathematics and science.

In undertaking this joint project, both institutions have been influenced by the key importance in our society of secondary school teachers. At present, the production of teachers of high caliber and adequate training falls far short of the demand, particularly in the various areas of science and mathematics. There is every indication that this situation will grow more acute in the next decade. The project is intended to help alleviate this shortage by increasing the number of able teachers who are qualified to an exceptional degree, both in the breadth of their outlook and in the excellence of the professional training they receive.

(Continued on page 498)

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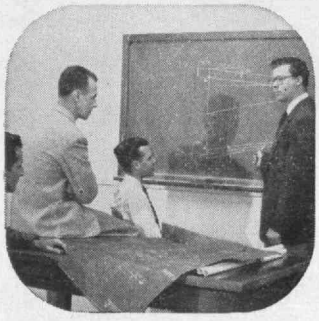

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THE INSTITUTE GAZETTE

(*Continued from page 496*)

Research and Human Relations

APPROXIMATELY 60 leaders from industrial research laboratories took time off to attend a two-day conference at M.I.T. on May 29 and May 30 to discuss "Human Relations Problems in Research Management," on the first day of the conference, and "The Industrial Liaison Program" on the second. The latter topic, incidentally, represents a relatively new type of co-operative union between industry and higher education in which both industry and university have unusual opportunity to benefit from the activities and experiences of the other.

In discussing human relations problems in research management, on May 29, Alexander Bavelas, '48, Associate Professor of Psychology, and Herbert A. Shepard, '50, Assistant Professor of Sociology, described experimental studies which had been conducted at M.I.T. to determine the effect of different patterns of communication on the efficiency and morale of problem-solving groups. At luncheon, Professor Walter G. Whitman, '17, Head of the Department of Chemical Engineering, spoke on "Ad Hoc Evaluation Projects for Government and Industry." In the afternoon, Paul Pigors, Associate Professor of Industrial Relations, set forth views on organizational relationships in research, stressing especially problems growing out of the transition from laboratory, through pilot plant, to production. A general discussion on research personnel problems provided opportunity for industrial research leaders to bring up problems particularly interesting to them and to benefit from the experience of others in the group. Finally, George O. Curme, Jr., Vice-president of the Union Carbide and Carbon Corporation, spoke on "Human Relations in Industrial Research."

On May 29, the Industrial Liaison Program was outlined and methods were surveyed by which this phase of Technology's activities could be more effectively co-ordinated with industry. Formal talks were given by members of the Institute's staff during the morning session, whereas at the luncheon, informal discussions were held about the aviation, chemicals, electronics, food, manufacturing, metals, and petroleum industries.

Throughout all of these discussions was the theme of mutual co-operation between industry and the Institute. The group effort in research, developed to a high degree during World War II, is applicable to the peacetime promotion of technology, and such a program has been under progressive development for several years. Industry can benefit from such a program by being kept abreast of developments in a wide range of fields having indirect bearing on its main operations. On the other hand, the Institute benefits its Faculty and staff by bringing to classroom teaching a better contact with the most recent industrial problems.

(*Continued on page 500*)

(*Continued from page 498*)

Geologists' Survey

THE Visiting Committee on the Department of Geology* met at the Institute with Professor George R. Harrison, Dean of Science, in the office of Professor Robert R. Shrock, Head of the Department, on December 11, 1950. The following report attempts to call attention to the present status of the Department of Geology – its present activities, its facilities and equipment, its needs for efficient operation, and its plans and hopes for the future.

The total enrollment in the Department for the school year 1950–1951 is the largest that the Department has ever had. Enrollment has increased steadily since World War II and members of the Department feel that the present total enrollment of 90 students is about as many as can be handled with the present facilities, space, and staff.

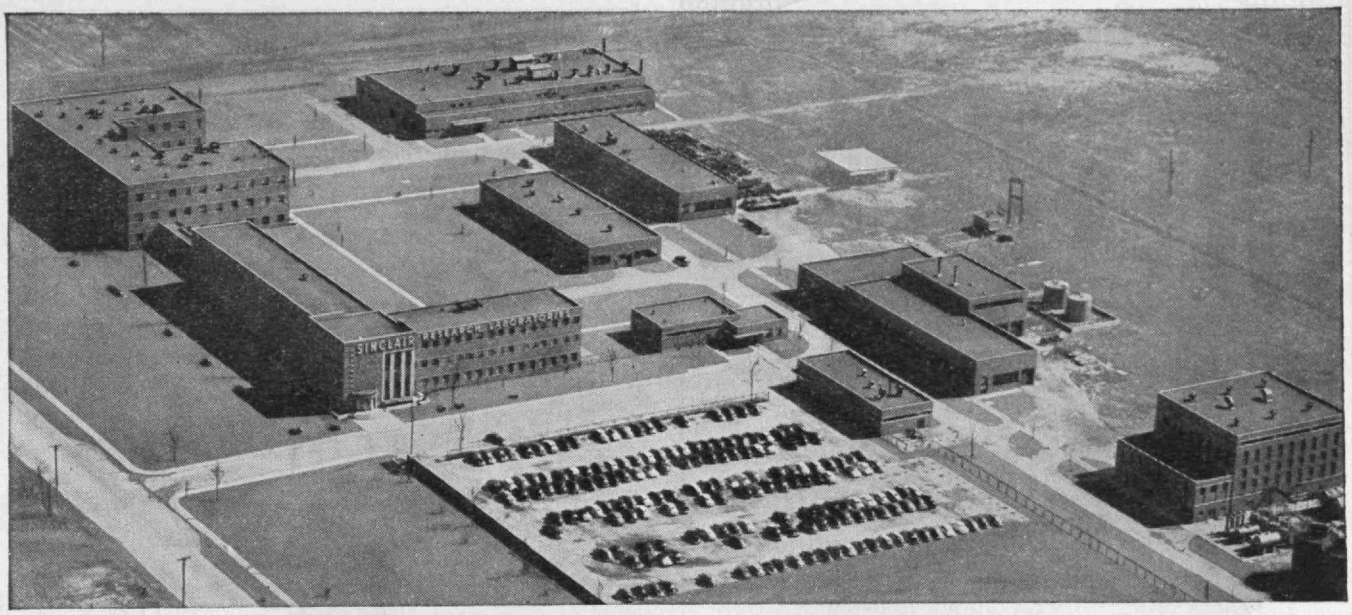
The nine bays of additional space made available to the Department during the summer of 1950 have relieved the great pressure for space that has dogged the Department since it moved to Building 24. They have provided space for a geophysical and a research laboratory, and a place to house members of the teaching staff. In addition, space in Building 20 has been cleared and equipped with facilities for undergraduates who wish to do their thesis work there.

The Committee was shown the development of a new geophysics laboratory in Building 24 which was made possible by a special appropriation. It is the beginning of what the Department hopes will become a Division of Geophysics. The Committee was also shown the excellent collections of sedimentary rocks and fossils in Building 24 and was particularly impressed by the intensive use that was being made by both graduate and undergraduate students of the five new petrographic microscopes and five new binoculars that were purchased a year ago from a special fund made available by the Administration. These new microscopes make available modern equipment for the study of sedimentary rocks and fossils, both of which are of such vital importance to the petroleum industry.

Since the last meeting with a Visiting Committee, the Mineralogical Laboratory has been equipped with a ventilation system by which obnoxious and dangerous gases can now be evacuated, and the previous health hazard definitely ameliorated. The Committee was informed that the Department, through recent purchases, is now equipped with excellent projection equipment and screens, and considers that this type of equipment is absolutely essential for teaching students, for demonstration purposes, and for use in seminars or general lectures.

(*Continued on page 502*)

*Members of this Committee for 1950-1951 are: Louis S. Cates, '02, chairman, Godfrey L. Cabot, '81, William C. Potter, '97, Robert B. Sosman, '04, Victor Dolmage, '17, Guillermo Zuloaga, '30, and Thomas B. Nolan.



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Instructions on how and where to submit ideas under the Sinclair Plan are contained in a complete Inventor's Booklet that is available on request. Write to the office of the Executive Vice-President, Sinclair Research Laboratories, Inc., 630 Fifth Avenue, New York 20, N. Y. for your copy of this booklet.

IMPORTANT: *Please do not send in any ideas until you have sent for and received the booklet of instructions.*

SINCLAIR—A Great Name in Oil

THE INSTITUTE GAZETTE

(Continued from page 500)

The Department is very concerned over its undergraduate program of instruction and has been giving considerable study to this program for the purpose of revising it, so that it will have even greater strength and breadth than at present. As a result of a study now in progress, the Department expects to petition the Committee on Undergraduate Instruction for a number of important modifications to the two options now offered in the Department. These modifications will make the program better adapted to the training of geologists who go into the petroleum industry.

The most important modification that has been made in the undergraduate program in many years was made three years ago when arrangements were completed with tha Nova Scotian Government, by which a summer camp was established at Crystal Cliffs near Antigonish. This Summer Field Camp is described in the May, 1951, issue of The Review.

As a further effort to improve the undergraduate program of instruction, the Department hopes to make arrangements with one or more geophysical exploration companies by which juniors in Option 2 (geophysics), and possibly some seniors in Options 1 and 2 (geology and geophysics), will be able to spend a summer in the field with an active exploration party.

The Committee noted with approval how the more active professors in the Department have developed groups of enthusiastic graduate students working with them, and feels that this method of scientific training is excellent. It noted particularly the vigorous groups working with Louis H. Ahrens, Assistant Professor of Geology, Martin J. Buerger, '24, Professor of Mineralogy and Crystallography, Harold W. Fairbairn, Associate Professor of Geology, Patrick M. Hurley, '40, Associate Professor of Geology, Walter L. Whitehead, '13, Associate Professor of Geology, and Robert R. Shrock, Professor of Geology.

In the above record, the Committee detected a strong feeling of co-operation between the professors and the graduate students for the type of research work that they are carrying on. Certainly a general program of research such as that now being conducted in the Department of Geology should be encouraged, and if possible extended, because such a

(Continued on page 504)

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(*Continued from page 502*)

program produces two important results: It produces well-trained scientists who can leave the academic halls fully prepared to carry on investigations elsewhere; and it produces original contributions while the students are being trained.

The Committee noted with great concern that the Lindgren Library had not been moved to a place near the present Geology headquarters, with the result that the library is not finding its intended use by either staff or students, and urged strongly that the Administration extend every effort possible to make the facilities of Lindgren Library more available than at present.

The Committee visited the Petrography and Mineral Deposits Laboratories, where microscopic work goes on in connection with learning the use of the petrographic microscope and studying the relation of the minerals in rocks, and was impressed with the poor condition of the microscopes in both of these departmental laboratories.

The Committee felt that too much emphasis could not be put on the necessity for providing modern laboratory instruments, such as petrographic microscopes and binocular microscopes. These instruments are absolutely essential for adequate training in different aspects of microscopic work in geology. It is the opinion of the Committee that the greatest need in

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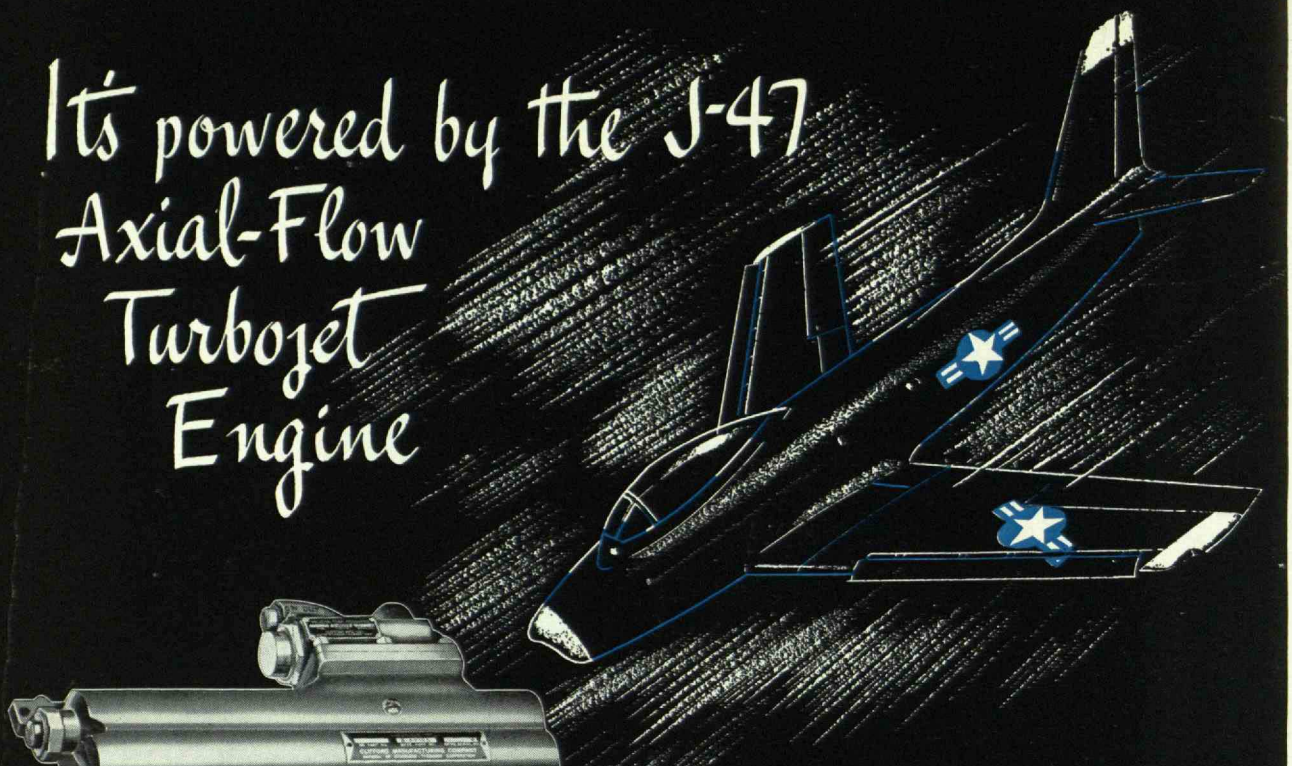

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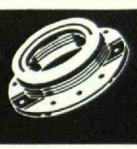
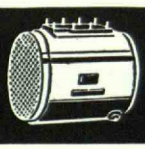


Bellows Seal Assembly



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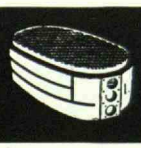

All-Aluminum Oval Oil Cooler

teaching facilities and equipment, at the present time, lies in the necessity of replacing the present petrographic microscopes with new instruments.

The staff plans to achieve the following aims:

A. Develop a broad undergraduate program in geology that will produce potential geologists who can enter any of the several possible fields of employment – petroleum industry, geological surveys, mineral industries, teaching, and so on.

B. Develop a broad undergraduate program in geophysics that will produce students who can continue graduate work in the field (theoretical or applied physics; exploration geophysics), or can accept employment with a geophysical organization and participate in applied and interpretational geophysics.

C. Develop a broad and strong program of graduate instruction and research designed to produce able field, laboratory, and theoretical scientists who can investigate a wide range of problems concerned with the physical characteristics, chemical nature, structure and architecture, and geological history of the earth.

D. Develop a staff who can conduct the proposed program of instruction and research, and who themselves will carry on specialized research of their own that will develop new ideas and principles, and expand the applications of existing theory.

ALUMNI DAY

(Continued from page 490)

been happening to the quality of the Institute's program, to the effectiveness of its education and its environment.

This Year's Educational Progress . . .

Let me cite a few examples of the progress and changes which have been made in our educational program. Since the war we have had the study and report of the Committee on Educational Survey—a report which is exerting great influence in the refinement and development of our educational activities. In response to one of the recommendations of this report, we have established a School of Humanities and Social Studies, which gives formal expression and adequate status to our developing programs in general education and social sciences. Again on the recommendation of the Committee on Educational Survey, the Faculty has authorized two additional, elective terms to be added if desired by students to the present eight terms of general education which we have in our undergraduate program.

Two recent grants by foundations to the Institute may be cited as typical of some of the innovations taking place in our educational program. The first of these came to the Institute without being sought by it, although the grant was no less needed or welcomed. This grant, totaling $150,000 was made by the Carnegie Corporation to be expended by the Institute over a period of five years for the purpose of strengthening its work in the humanities and social sciences. This grant was made by the Carnegie Corporation in recognition of the Institute's developing

(Continued on page 508)

No. 2 GEARED ELECTRIC TURRET LATHE
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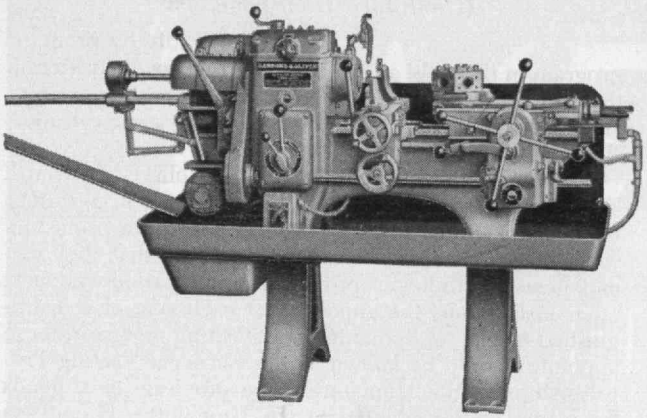

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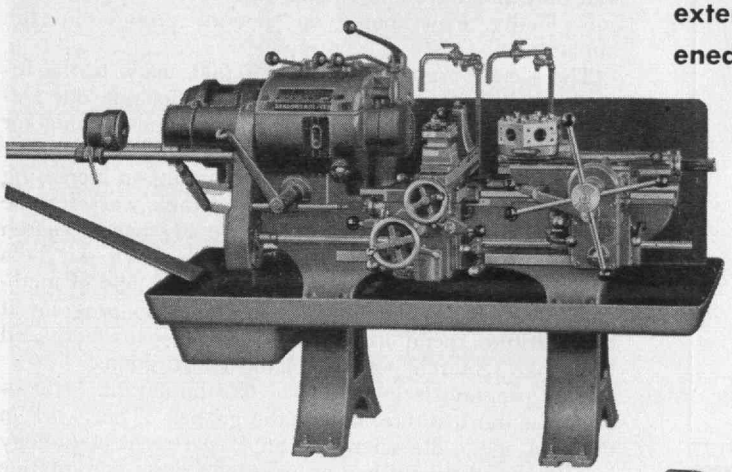
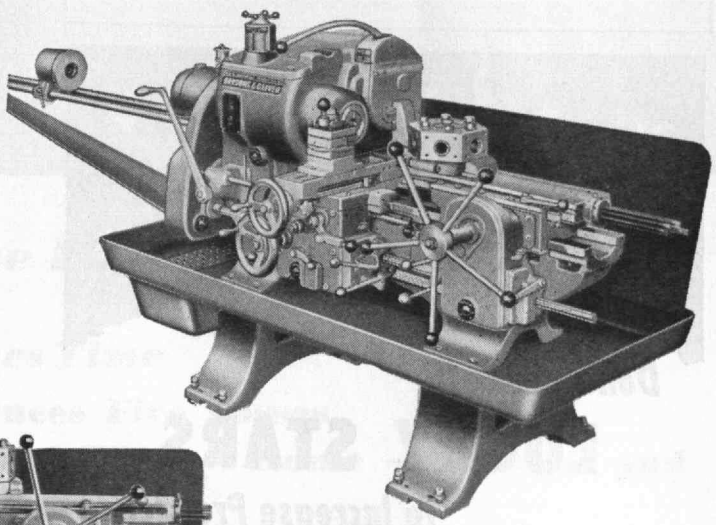


No. 3 UNIVERSAL TURRET LATHE
Bar capacities, standard work 1½" x 9",
light work 2" x 9". Swing 15⅜"



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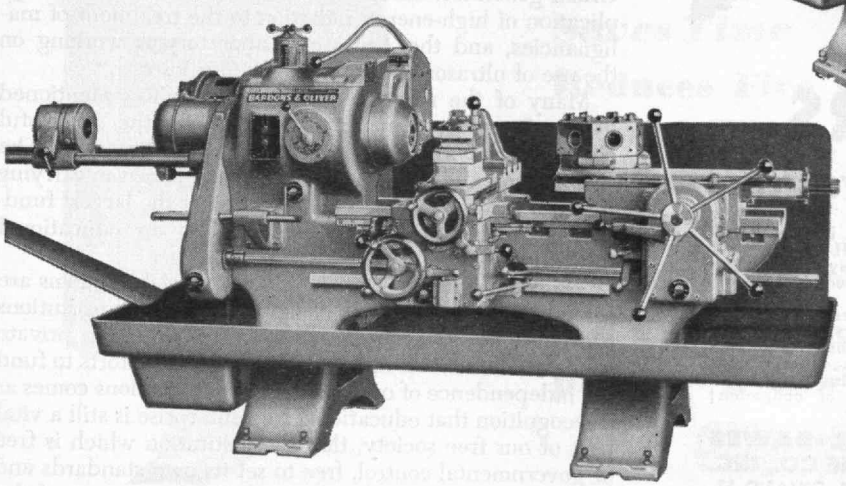
standard duty work 3" x 14". Swing 21½"



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(*Continued from page 506*)

program in this field and in response to its own conviction that our institutes of technology have a great opportunity and responsibility to train men who can assume leadership in our increasingly complex society.

This important grant is to be used by John E. Burchard, '23, Dean of Humanities, and his associates in a variety of ways, including releasing two or three of our professors each year from normal teaching duties so that they can make careful studies of programs in general education at other institutions; the appointment each year of a distinguished teacher of humanities as a visiting professor, these appointments to be known as the Carnegie Visiting Professorships in the Humanities; the provision of stipends for young men appointed to our Humanities Faculty so that they may have half of their time free for scholarship; and finally experiments in honors groups in the humanities.

The second grant is one of $150,000, made to the Institute by the Commonwealth Fund, to enable our Department of Biology to provide postdoctoral training for men who have completed their medical education. Our Department of Biology has been attracting an increasing number of men who have completed their work for the M.D. degree and who wish to acquire advanced research techniques in the field of biology which will make them more effective for careers of research in the field of medicine. The doctors of medicine who take this program at the Institute spend usually one or two years here and then take research posts in medical institutions.

This program is indicative of two important developments at the Institute. One is the growth of our work in the field of the life sciences. Our Department of Biology has become distinguished as a center for the quantitative study of biology, the application of the techniques of physics and chemistry to the life sciences. Second is the steady growth at M.I.T. of interest in medical and biological problems. The Radioactivity Center in Physics, for example, has made many important contributions to medicine through the development of the application of radioactive tracer techniques to many clinical and medical problems. The High Voltage Laboratory in the Department of Electrical Engineering, utilizing the Van de Graaff generator, has made important advances in the application of high-energy radiation to the treatment of malignancies, and the Acoustics Laboratory is working on the use of ultrasonics for diagnostic purposes.

Many of the new programs and activities mentioned have, of course, been made possible by the successful completion of the M.I.T. Development Program. The Corporation and Alumni of the Institute joined in carrying through to a successful conclusion one of the largest fund-raising campaigns ever undertaken by an educational institution.

This does not mean that M.I.T.'s financial problems are solved. It does mean that it and other private institutions can continue to secure generous support from private sources. The success of this and other major efforts to fund the independence of our great private institutions comes as a recognition that educational free enterprise is still a vital part of our free society, that the institution which is free of governmental control, free to set its own standards and goals, and free to preserve its own freedom, is one of the bulwarks of America.

In order to make sure that we continue to find the additional resources which the Institute must have to maintain its position and to move ahead, we have established a permanent Development Office, and I am happy to re-

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ALUMNI DAY

(*Continued from page 508*)

port the appointment of Ralph T. Jope, '28, as director of the Development Office of the Institute.

My report to you would be incomplete without some reference to those broad policies of the Institute which have been designed to adapt it to the current emergency.

Intellectual Tax on Scholars . . .

At the present time the Federal Government is calling on the universities for millions of dollars of research bearing upon our national defense. It is imposing, and quite properly so, an intellectual tax on our communities of scholars in the form of expert consultation and services on a large scale. All of this is proper and necessary and illustrates the position of basic importance in our national life which our educational institutions have come to occupy. I am proud of the fact that M.I.T., its Faculty, and its students have shown the adaptability and flexibility and public spirit to make this emergency contribution to our national welfare, while continuing their normal activities. As we undertake these emergency responsibilities, however, I think it important that we never lose sight of the basic educational objective of the Institute. We must make sure that we continue to maintain our standards and train as many men as our own resources and national policy permit us to educate.

Under present conditions when man-power shortages are so great and specialists are pulled in so many directions, it is particularly important that places such as M.I.T. give high priority to those activities and men who are primarily concerned with education. We must, for example,

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(*Continued from page 510*)

give the professor a sense of his importance as a teacher and a creative scholar. We must make sure that we preserve the incentives and environment for creative teaching and scholarship.

As we accept our emergency responsibilities we must be sure to recognize that teaching and scholarship warrant high priorities in the allocation of man power. Only by doing so can we prevent the man-power shortages of the future.

For All to See . . .

After Dr. Killian's address, visitors were free to inspect new construction on the M.I.T. campus. In addition to the Charles Hayden Memorial Library, which was dedicated a year ago, new structures open for inspection were the Hydrodynamics Laboratory and Ship Model Towing Tank (see Technology Review for June, 1951), the Sloan Building which will quarter the new School of Industrial Management and the proposed Faculty Club, and the 12-million-electron-volt Van de Graaff generator. Under construction at the present time, with concrete pouring virtually completed but no interior work finished, are the Sloan Metal Processing Laboratory and the John Thompson Dorrance Laboratory for Biology and Food Technology, both of which adjoin the Institute's main group of educational buildings.

Light refreshments were served to Alumni Day guests at the open house reception at the President's House between 4:00 and 5:30 P.M. The reception provided many Alumni their first opportunity to see the President's House since it has been occupied by Dr. and Mrs. Killian.

Prior to the Stein-on-the-Table Banquet, many classes convened for informal gatherings in private rooms in the Copley Plaza.

Alumni Banquet . . .

With Mr. Lunn as toastmaster, 931 Alumni, honored guests, and Faculty members attended the Stein-on-the-Table Banquet to participate in what has become the high light of Alumni Day activities.

David A. Shepard, '26, recently elected member of the M.I.T. Corporation, made the presentation of the 25-year Class gift to Dr. Compton – a check slightly in excess of $150,000. For the 50-year Class, Albert W. Higgins, '01, presented a check for $71,000, although other contributions from this Class have brought its total gifts to the Institute to the sum of nearly $1,000,000. Both of these evidences of grateful loyalty were graciously received and acknowledged by Dr. Compton.

Mr. Lunn then introduced Marshall B. Dalton, '15, who made his final report on the recently and successfully completed Development Program. Whereas the original objective was to raise $20,000,000 during this program, the final report shows that $25,800,000 has been raised by the Committee, headed by Alfred P. Sloan, Jr., '95, as honorary chairman, Marshall B. Dalton, '15, as general chairman, and Ralph T. Jope, '28, as assistant executive director, in a program in

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ALUMNI DAY

(*Continued from page 512*)

which 5,000 Alumni and friends of Technology took part. In formally closing this chapter of the Institute's fund-raising activity, Mr. Dalton presented to Dr. Compton a Book of Remembrances which included the names of all who had supported the program during the two and one-half years it was in effect. The volume was received by Dr. Compton who stated that it would occupy a prominent place in the Institute's historical collection.

Donald P. Severance, '38, Secretary and Treasurer of the M.I.T. Alumni Association, was then called upon to conduct Professor George R. Harrison, Dean of Science, to the speakers' platform to receive a certificate attesting to his election as an honorary member of the Alumni Association. In responding to this recognition for his distinguished service, Dean Harrison pointed out that he became an Alumnus of M.I.T. the hard way – that whereas most students achieve that status after four years, it took him 21 years of hard work at M.I.T. to become an Alumnus. In accepting his certificate of membership, Dean Harrison chose to be affiliated with the Class of 1898 which had "adopted" him as a member several years ago.

Banquet Addresses . . .

Richard M. Bissell, Jr., Deputy Administrator of the Economic Cooperation Administration and Professor of Economics on leave of absence from the Depart-

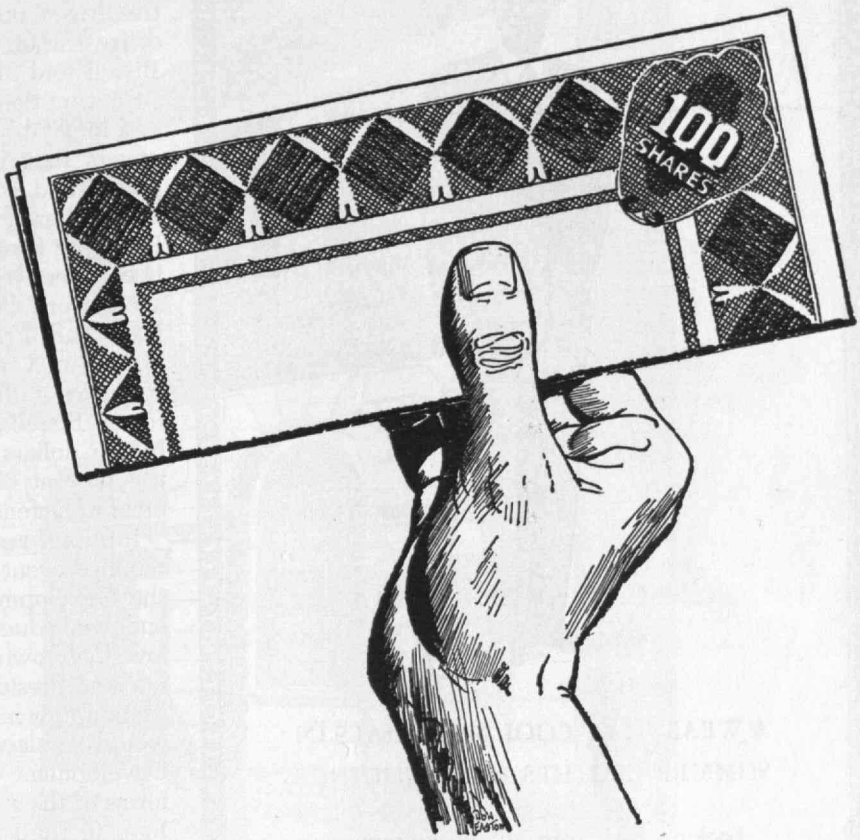
(*Continued on page 516*)

Who owns big business anyway?

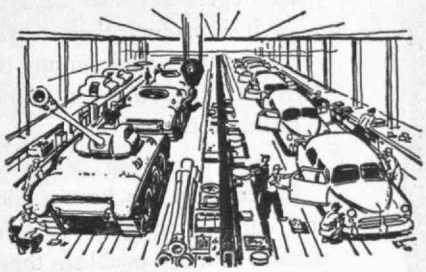
1. Many people, including the Russian delegates to the United Nations, don't seem to understand who owns America's corporations. They continually talk about "Big Business" and "Wall Street Capitalists" as if our big companies were owned and run by a handful of "economic royalists."

2. As a matter of fact, practically all large American corporations are owned and run *by the American people.* Union Oil Company, for example, has more than 36,000 stockholder-owners. 33,613 of our common stockholders are individuals—15,528 women and 18,085 men. The remainder consist of some 2,500 educational, religious and charitable institutions, labor unions, insurance and trust companies.

3. Approximately half of Union Oil's common stock is owned by stockholders who have 500 shares or less. Average shares per stockholder is 146. Naturally there are many larger holdings than this and many smaller, but our largest stockholder owns only 2¼% of the total stock. Our directors and officers combined own 2½%.



4. In other words, Union Oil Company is owned not by a few dozen millionaires but by many thousands of ordinary Americans. And this is true of practically every U. S. corporation.* So when the Communists argue that their system would allow the American "people" to "own" their industries, they're whistling up the wrong drainpipe. The American people own their industries already.



5. The big difference is that our system provides the incentives to the individual, the competition and the efficiency that go with private ownership. Consequently, our industries are able to outproduce, outprogress and outdo the Communists' by a country mile. And our people are free to spend their money, put it in the bank, invest it in stocks or bury it in the back yard—whichever they darn well please.

**More than 15 million Americans own stock in some U. S. corporation. In addition to these, everyone who has a life insurance policy will find some of his "cash value" invested in corporations. So, altogether, probably 8 out of 10 American families have a direct or indirect stake in U. S. corporations.*

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ALUMNI DAY

(*Continued from page 514*)

ment of Economics and Social Science at M.I.T., delivered the banquet address, "The Strengthening of the Free World." Commenting on the general feeling of frustration which pervades Washington, Professor Bissell told his audience that for the past five years "it is true that we are on the defensive, unavoidably and inevitably." In spite of high expenditures of taxpayers' money, this nation is still unprepared in man power and equipment for outright combat, and is outnumbered in these facilities by the Soviet Union. Professor Bissell believes that the Marshall Plan has been effective in weaning some European countries away from Communist domination, and mentioned Italy and France as examples. In combating the growth of Communism by economic aid to foreign countries, rather than by military preparedness, Professor Bissell compared the E.C.A.'s budget of 16 billion dollars, spent over a three-year period, with the present 60-billion-dollar budget of the Department of Defense.

Informal remarks by President Killian constituted the final event of the evening. Stressing the success of the Development Fund and the need for privately endowed educational institutions to remain free to follow their own objectives devoid of government direction, President Killian stated that the financial program for maintaining the Institute's independence would be placed in the newly established permanent Development Office. Speaking in warm and glowing terms of the service which had been rendered by Mr. Jope in fund-raising activities during the Development Program, President Killian recalled his announcement at luncheon, that Mr. Jope had been appointed director of the Development Office. Further details regarding this topic will be found on page 492.

But the major message which President Killian delivered at the banquet dealt with the shortage of technically trained personnel in the current national emergency. Warning of "the grave shortage of scientists and engineers which we face in this country at the present time," he said that this shortage will become still more acute in the next few years. Continuing with this general theme, Dr. Killian said:

> This shortage came about because of the unfortunate estimates given national distribution by the Bureau of Labor Statistics several years ago. These estimates at that time indicated that the country was faced with a surplus of engineers, and the report had an obvious effect on the number of young men going into engineering schools.
>
> Last year the engineering schools of the country graduated about 50,000 young engineers. This, of course, was an exceptionally high number, reflecting the wave of G. I.'s which had been going through the colleges. Based upon present enrollments, estimates have been made which indicate that in 1954 we will turn out of our engineering schools from 12,000 to 16,000 engineering students. This compares to an output from our engineering schools just before World War II of some 20,000 engineers a year.
>
> Because, therefore, of a decreased enrollment in the entering class this year and the prospect of a similarly

(*Concluded on page 518*)

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ALUMNI DAY

(*Concluded from page 516*)

small freshman class next year, we face the possibility of turning out fewer engineers than we educated before World War II. These figures do not reflect further curtailments that may come about as a result of Selective Service. Actually the country's demand for engineers is greatly in excess of what it was before the war. Estimates now place the annual demand for engineers around 30,000 graduates a year.

This year the total number of engineers graduating will be on the order of 38,000, but of this total industry can count on getting only about half. According to a study recently made by the Engineering Manpower Commission of the Engineers Joint Council, industry will have a deficit of about 11,000 engineers this June. While industry will get half of the number graduating this year, estimates indicate that they will get only one-fourth their needs next year. Again this does not take into consideration the need for engineers and scientists on the part of military establishments or other government operations.

Our own experience with this year's group of graduates points up these over-all figures which I have reported on. M.I.T. could have placed this June three or four times as many graduates as we had available for jobs. In some fields the demand is almost fantastic. Nathaniel McL. Sage, '13, Director of our Division of Industrial Coöperation, tells me that the companies are eagerly taking men who are likely to be drafted or who are in the Reserve Officers' Training Corps, on the gamble that they can have them long enough to establish a tie and thus have some chance of getting them after their military service. This is based on a long-range view, on the part of the companies, that the peak of the shortage will come a few years hence.

Let me give you just a few examples of the kind of demand that we have been experiencing. One company reported to our Placement Office that it is prepared to take three times the number of men that we are graduating this year from one of our major departments.

Another company has a goal of employing 200 Ph.D.'s and 2,000 bachelor and master's degree men. Still another company has raised its normal quota for technical men fourfold. Two companies alone, that have talked with us, are prepared to take nearly 10 per cent of this year's total output of all engineering schools in the country.

I believe it important that we do everything possible in this country to attract outstanding young men into the engineering colleges.

Finale . . .

Dr. Killian paid a warm tribute to the co-operation of the officers of the Institute's Alumni Association, who, he said, had sought to strengthen the Institute's Administration at every turn.

Upon conclusion of President Killian's address, Mr. Lunn announced adjournment of the banquet. In the general exodus which followed, some hurried to catch trains, some lingered for a parting handshake or to wave a final good-by, and a few of the more energetic continued the evening of sociability wherever their fancy and facilities directed. But whatever the circumstances of their departure, in each case there were two common elements. Each person had a tight clutch on the 1951 Alumni Day stein, with its picture of William Barton Rogers, First President of M.I.T., and all were looking forward to reunion on Alumni Day, 1952.

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TRADITION AND PROGRESS

(Concluded from page 480)

education and religion to help us achieve this integrity of mind and conscience, without which the progress or even the continuation of civilization is in jeopardy. Of this high end I venture one brief and a final word to you.

You and I are set to live and to labor in a world that is out of balance. This condition is not of recent origin. For a good many centuries the world was badly out of balance because of man's arduous efforts to gain mastery over nature. Having achieved a marvelous control over his environment, it must be said, alas, that man has achieved no such notable control over himself. Seeding the clouds to produce rain, splitting the atom to facilitate healing or destruction, inventing a machine that can calculate more rapidly than the human brain — these are wonderful achievements by man in the field of technology. But what will they profit our generation if we cannot tell the difference between right and wrong in terms of our personal conduct, if we cannot increase the hero in us at the expense of the coward, if we continue to confuse ends and means in our view of life, if we have acquired no invisible means of support in terms of faith in someone greater and more enduring than ourselves; namely, God, our Father. This struggle to be masters of ourselves that we may be the servants of others involves every one of us all. By thus stabilizing one's own life, one adds a very important bit of ballast to a world that is out of balance, and thus helps to again restore its equilibrium.

Well, to your posts, as mind and conscience may dictate. Never forget that it isn't what happens to you in life that matters; it's the way you face life that really counts. Therefore, follow your best insights until fear becomes courage and the meager heart grows generous; and, instead of race and nation, the whole world turns out to be your fatherland. Labor to keep alive the learning you have received here, the dreams you've cherished, and the hopes you have shared. They represent some very important but unfinished business which you may yet complete. Every now and then take a good look at something not made with the hands: a mountain, a star, the turn of a stream. There is wisdom, patience, solace, and, above all, the assurance that you are not alone in this wild and troubled world to be gained from these representatives of the world of nature.

THE NEED FOR UNITY

(*Continued from page 475*)

nually on our side than there is on the side of the Soviets — 272 million metric tons against 44 million metric tons.

I suggest that the question comes down to this: Have we any choice except to mobilize these great stockpiles of free traditions and materials into a giant drive for peace? Throughout Western Europe and the rest of the free world that question is being asked of the United States, and like the Ancient Mariner's wedding guest, we cannot choose but hear.

As the free world stands today, mobilization for winning the peace can be only as effective as American leadership and hope will make it. A new kind of leadership is called for. In a modern, interdependent world there is no room for dictator nations. American leadership must be that of a leader among equals. It must depend on persuasion rather than coercion, on understanding rather than edicts. But before we can lead, we must unite. We must unite to make sure we are strong, first of all, on the military front. With our free partners in Western Europe, we need military strength of an order which will effectively discourage or defeat aggression. This, may I point out, is military strength quite different from the man power and fire power needed to conquer a particular country. We must unite to be strong on the economic front. Our first, and greatest, obligation is to keep our country strong; and we must keep other free nations strong by helping them to help themselves. We must unite to be strong on the political front. If we really cherish the dream of a free world, we quite clearly must put all our vigor behind the institutions that are designed to unite honorable nations for the common defense of peace; namely, the United Nations and the Atlantic Pact. We must unite for strength on the propaganda front. The false promise of Communism across the "Voice of Moscow" can be heard daily by approximately 800,000,000 people. At the end of the war, only 200,000,000 people were within range of the Kremlin's transmitters.

We don't stand a chance of leading the free world to peace unless we can stop quarreling among ourselves and hating one another. The very least we can do for ourselves, the free world, and for our hundreds of thousands of men in Korea is to save our hate for our foes, unite here at home, and knuckle tightly down to the job of winning the peace. If we really mean what

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THE NEED FOR UNITY

(*Concluded from page 522*)

we say about wanting peace, first, last, and always, we have got to have unity among ourselves and with our friends. There are some practical tests we can use right at this moment to determine whether unity is lip service or a fact. The first practical test is the extent to which we back up General Eisenhower in Europe; and the second, General Ridgeway in Korea and Japan. Where General Eisenhower is concerned, we all know that we have in him the ideal supreme commander for the new European army. He has the power to inspire, the capacity to develop a workable program, and the toughness to see to it that every country carries its fair share of the burden of defense. Without involving myself in the controversy over General MacArthur, I should like to urge that we stand back of General Ridgeway with everything we have. Any dissension here at home will be marked up on the bitter scoreboard of Korea.

The third test is the intelligence and common sense we display in our support of foreign-aid programs to help our free-world partners to rearm and, in the process, to keep their own economies strong and healthy. A withdrawal of all aid could well lead to disunity and even disaster. The logistics of a successful campaign for peace are not simple. They are fantastically involved. The supply problem covers the world. It includes food, rehabilitation, transportation, measures to strengthen national economies, direct aid to exiles from countries behind the Curtain, education, unity of purpose and hope — to name only a few components of peace that must be mustered.

But if we will only take to heart the lessons of interdependency in our own country, we can handle this fabulously difficult job so well that the last 50 years of the Twentieth Century may well be the brightest of all time. Each moment in history is only as great as the challenge of the moment. For that reason alone I think we are living in a privileged period.

I would like to conclude with the words of a man I revered as much as any American of our day. Arthur Vandenberg not long ago wrote me a letter from his sickbed. Referring to the unpartisan spirit which launched the Economic Cooperation Administration, he wrote: "This working unity typifies our finest traditions and our greatest safety in the presence of external hazards to all Americans, regardless of party. United, we stand. Divided, we fall. I want America to stand."

FUNDAMENTAL KNOWLEDGE

(Concluded from page 472)

work more effectively. It must assume a leadership role in the education of its people on the economic facts of life and the functions of enterprise and the processes of the productive economy. All this must be done, without fear or favor, in recognition of management's great responsibility for the protection and perpetuation of a free society.

In accepting this broader responsibility, management must consider at all times the tremendous significance of the human values involved. True management is not expressed in the exercise of arbitrary authority or the capitalization of a high position. It is a matter of intelligence, co-operation, and understanding. The higher the level of management's responsibilities, the more significant that fact becomes.

Such is my concept of a pattern of industrial management that will serve in the society of today to strengthen our system of competitive enterprise and contribute to the preservation of our economic freedom. It is my hope that to such objectives the policy of the new School of Industrial Management will always be directed.

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Alumni AND Officers IN THE News

Symposiasts

ROBERT C. ELDERFIELD'30, ARTHUR C. COPE, staff, and JOHN D. ROBERTS, staff, took part in the Twelfth National Organic Chemistry Symposium sponsored jointly by the division of organic chemistry of the American Chemical Society and the Society's Colorado section. The four-day symposium, which opened on June 12, took place in Denver, Colo.

Several Alumni were actively engaged in the 111th national meeting of the American Meteorological Society from June 19 through June 21 at the University of Southern California in Los Angeles. MORRIS NEIBURGER'41 was chairman of the afternoon session on June 19 and ALBERT K. SHOWALTER'36 was the chairman of the morning session on June 20. Papers were presented at the meeting by the following: EDWARD V. ASHBURN'40, PHILIP F. CLAPP'40, ROBERT D. FLETCHER'41, MORRIS NEIBURGER'41, and GLENN R. HILST'48.

Alumni and staff members participating in the symposium on "Hydrodynamics in Modern Technology" which followed the dedication ceremonies of the Hydrodynamics Laboratory and Ship Model Towing Tank at the Institute on June 4 included: THOMAS V. MOORE'29, "Flow of Multiphase Fluids Through Porous Media"; THOMAS R. CAMP'25, "Hydraulics in Sanitary Engineering"; EDWARD L. COCHRANE'20, chairman of the morning session (B), June 5; HAROLD E. SAUNDERS '16, "Current Hydrodynamic Problems in Ship Design"; KARL E. SCHOENHERR'22, "Progress in the Computation of the Frictional Resistance of Ships"; CALVIN M. BOLSTER'23, chairman of the afternoon session, June 5; ROBERT C. GOODING'46, "Hydrodynamics of Undersea Warfare"; CHIA-CHIAO LIN, staff, "Some Aspects of Recent Developments in the Study of Turbulence"; ASCHER H. SHAPIRO'38, "Turbulent Transfer Processes in Parallel Jets"; JAMES W. DAILY and KENNETH C. DEEMER, staff, "The Unsteady Flow Water Tunnel for Boundary Resistance and Cavitation Studies"; BRANDON G. RIGHTMIRE'41, "The Effect on Metal Surfaces of Steepfronted Pressure Waves in Liquids"; GEORGE E. RUSSELL'00, chairman of the afternoon session, June 6; VICTOR P. STARR'38, "Review of Progress in the Study of Gravity Waves"; ARTHUR T. IPPEN, staff, and DONALD R. F. HARLEMAN'47, "Quantitative Studies of Supersonic Flow Problems by Hydraulic Analogy"; ALLAN T. GIFFORD'27 and HENRY M. PAYNTER, JR.,'44, "New Relationships for the Anaylsis of Surge Tank Transients"; LAWRENCE G. CAMPBELL, staff, and ROBERT S. YOSEPH'50, "Quantitative Studies of Oxygen Transfer in Water."

Honorances

SAMUEL C. PRESCOTT'94 is the recipient of the Stephen M. Babcock Award for distinguished service in food technology resulting in advance in national health. The award was made at the national meeting of the Institute of Food Technologists in New York, held June 16 through June 20, and was accompanied by a generous cash prize awarded by the National Nutrition Foundation.

THOMAS D'ARCY BROPHY'16 was among the 1951 recipients of the Annual Medal of the School of Journalism, Syracuse University. Presented on April 6 in Syracuse, N. Y., the medal was awarded "for distinguished service to advertising."

The American Society of Testing Materials has announced that EDWARD R. SCHWARZ'21 will be presented with the Harold DeWitt Smith Memorial Medal at the October meeting of the ASTM Committee on Textile Materials. The medal is awarded for outstanding achievement in the field of textile fiber science and utilization, which includes the development and promotion of knowledge of textile fibers and structures and/or co-operates with the Army on food proberties.

Miscellanea

GLEN STANTON'21 is the new president of the American Institute of Architects, succeeding RALPH T. WALKER'11.

Effective May 1, DUNCAN R. LINSLEY '22 was elected chairman of the executive committee of the First Boston Corporation.

EGER V. MURPHREE'23 addressed the Third World Petroleum Congress on June 5 at The Hague, discussing, "Benefits from Research to the Petroleum Industry."

BERNARD E. PROCTOR'23 has been named president-elect of the Institute of Food Technologists for 1951-1952. Dr. Proctor has also been elected a member of the board of directors of the associates, Food and Container Institute of the Armed Services, the industry group that co-operates with the Army on food problems of military importance.

JAMES W. DUNHAM'26 was elected president of the International Acetylene Association in May.

PHILIP N. RUGG'27 was elected president of the Engineering Societies of New England on April 27.

GORDON S. BROWN'31 will present a paper entitled: "Feedback-System Engineering, A Challenging Educational Objective," at a conference on automatic control sponsored by the Department of Scientific and Industrial Research, British Ministry of Supply, at the Royal College of Aeronautics, Cranfield, England, July 16 to July 21.

ROBERT M. ROBBINS'38 and WILLIAM H. COOK'38 tell the story of what it is like to fly the world's first sweptwing bomber in their article, "Flying the Forty-seven," published in the *Boeing Magazine*, May, 1951, issue.

Obituary

LEWIS E. JOHNSON'89, March 18.*
HOWARD C. FORBES'91, May 8.*
CHARLES GARRISON'91, April 22.*
JOHN G. MORSE'92. March 30.
EDWARD J. HOLMES'93, May 29, 1950.
ARTHUR L. PATRICK'94, May 9.*
EDWARD E. ALLEN'95, April 14.
GEORGE W. HAYDEN'95, April 20.*
MARY E. DANN'96, August 6, 1941.
GEORGE H. MCCARTHY'97, March 26.*
EDWARD W. SIBLEY'99, April 7.*
HORACE JOHNSON'01, August 20.
ROBERT B. MORTON'01, May 19.
WILLIAM H. RASCHE'01, May 9.
GEORGE B. OBEAR'03, in November, 1944.*
PAUL J. PITNER'03, July 19, 1950.*
ALFRED W. BURNHAM'04, April 29.
STEPHEN E. KIEFFER'04, December 19, 1949.
GEORGE A. HOOL'05, April 27.*
PHILIP P. MANTA'05, in September, 1949.*
REV. MICHAEL J. AHERN, S.J.,'06, June 5.
HARVEY B. ORCUTT'06, April 6.
EDWARD L. MORELAND'07, June 17.
JOHN C. CHILDS'08, November 25, 1945.*
WALTER F. HUDSON'08, April 3.*
READ I. RIPLEY'08, April 5.*
CHARLES A. JOHNSON'09, December 5.
HERBERT R. PETZOLD'09, January 17.*
HIRAM N. CRICHTON'10, April 21.*
ULDRIC THOMPSON, JR.,'12, August 18, 1945.*
FRANCIS S. CURTIS'13, January 9.*
WILLIAM JOHNSTONE'13, February 19, 1945.*
ERNEST S. SHURTLEFF'14, April 2.*
ALFRED E. BANNISTER'15, March 10.*
JULIAN K. FERGUSON'15, March 24.*
LESLIE J. HEATH'15, in July, 1950.
RAYMOND W. WAGNER'16 May 3.*
HENRY HOPKINSON'18, March 17.
ARTHUR E. WALES'19, April 16.*
ROBERT L. TURNER'20, May 2.
HARRY VICTOR'21, February 28.*
EDWARD F. BOWDITCH'22, April 28.*
EVERETT W. HOWE'22, May 24.
ISAAC MARK, JR.,'22, May 15.
GABRIEL SMITH'22, February 12, 1948.*
SAMUEL SCHNEIDER'24, March 8.
MAURICE P. KULP'26, November 27.*
AGNES C. MURPHY'26, date unknown.
JOHN G. DEEGAN'28, October 11.*
HENRY GITTERMAN'28, November 12.*
BELVIN F. WILLISTON'31, November 26, 1948.
HARRY R. SEIWELL'38, March 7.*

**Mentioned in class notes.*

News FROM THE Clubs AND Classes

CLUB NOTES

The M.I.T. Club of Buffalo

This has been an interesting spring for the Club. Our activities have included two field trips, a dance, the annual election dinner with J. Edward Vivian'39, Director of the M.I.T. Chemical Engineering practice school, as guest speaker, and a picnic to immediately come.

On February 5, we went on a trip through General Motors' West Lockport Harrison Radiator Plant. Those attending were: C. B. Allen, Jr.,'29, E. T. Allen, W. R. Barker, E. T. Bean, A. M. Bretschger'48, E. D. Brown'23, Whitworth Ferguson'22, J. W. Field'47, E. C. Forbes'41, R. W. Harris'18, M. N. Hayes'36, G. Hilton'15, A. E. Hittl'36, V. Hwoschinsky '40, A. W. Ker'47, L. Lombardi'36, H. E. Miller'50, W. H. Miller'45, H. D. Mitchell'12, R. W. Morgan'38, J. Neal'15, J. H. Phillippi'38, W. H. Sherry'37, D. J. Taylor'39, and J. F. Wilson'41.

On March 15, we congregated at the Hotel Worth for dinner and then proceeded on a tour of General Mills, enjoying samples of the various products almost as much as the tour. Present were: E. Ashley'48, W. R. Barker, E. T. Bean, J. Bray'40, A. M. Bretschger'48, E. D. Brown '23, B. C. Buerk'30, W. O. Christy'31, R. Dunlop, G. J. Easter'15, J. M. Engel'37, W. Ferguson'22, J. W. Field'47, E. C. Forbes'41, M. Graves'36, G. W. Harvey '24, M. N. Hayes'36, A. E. Hittl'36, L. F. Hoyt'13, V. Hwoschinsky'40, V. B. Jex'50, R. Koegler'36, C. Kurtzmann'09, L. Lombardi'36, J. B. Mackenzie'43, G. W. Mahlman'48, W. H. Miller'45, D. C. Mitchell'34, H. D. Mitchell'12, J. H. Phillippi'38, R. I. Reis'48, J. R. Ryan'31, P. R. Schlehr'50, J. K. Seaman'35, N. S. Sinness '32, T. H. Speller'29, R. M. Thayer'32, E. Wagner'37, and J. T. Walsh'15.

We held a supper dance at the Hotel Sheridan on April 20. A delightful time was had in a setting of gay springtime flowers with a delicious buffet supper and Wally Carpenter's music. Among those present were: C. A. Dutton'23, D. J. Fink '48, J. C. Fantone'48, C. M. Graves'36, M. N. Hayes'36, R. K. Koegler'36, C. Kurtzmann'09, R. G. Loewy'48, L. Lombardi'36, T. J. McNaughtan'32, D. C. Mitchell'34, R. E. Pfohl'17, G. D. Ray'36, P. R. Schlehr'50, W. H. Sherry'37, and H. L. Towend'23. – VLADIMIR HWOSCHINSKY'40, *Secretary,* 585 Crescent Avenue, Buffalo 14, N.Y.

M.I.T. Club of Central New York

The Onondaga Pottery Company entertained Alumni and their wives after a dinner meeting at the University Club in Syracuse on March 28. Onondaga Pottery, makers of the famous "Syracuse China," described the manufacture of their products with the aid of colored slides. All ladies present received a gift of a handsome demitasse and saucer delicately made up in a gardenia pattern.

The following Alumni were present: Clayton K. Baer'41, Martin W. Bardwell '28, Frederick W. Barker'12, Herbert C. Button'23, Bernard Chertow'48, Nicholas DeWolf'48, James A. Drobile'50, Edwin A. Gruppe'22, Luke S. Hayden'41, Richard Henderson'38, Frederick Hodgdon '42, Marshall W. Jennison'27, Charles D. Luke'31, Donald L. Kidd'42, D. Earle MacLeod'38, James D. McNitt'41, Homer R. Oldfield'38, Jack L. Schultz'42, Adolph Sebell'40, Theodore Simonton'24, Carl Wood'42 – and ROBERT L. WOOLEY'41, *Secretary,* 10 Bradford Court, Syracuse 7, N.Y.

The M.I.T. Club of Cincinnati

The Club held a dinner meeting at the Alms Hotel on April 24. Hugh Robert Boyd'47, executive officer of M.I.T.'s Instrumentation Laboratory, was the speaker of the evening, leading a discussion on the effect of military research programs at the Institute.

Following the dinner program, new officers were elected: President, James W. Pearce'37; Vice-president, Gordon L. Foote'38; Treasurer, Samson I. Crew'34; *Secretary,* ALEXANDER C. BROWN'25, Emery Industries, Inc., 4300 Carew Tower, Cincinnati 2, Ohio.

M.I.T. Club of Florida

The American Waterworks Convention in Miami brought us the good fortune of meeting Rolf Eliassen'32, Head of the sanitary division of the Civil and Sanitary Engineering Department at the Institute. Professor John E. Kiker'35 of the University of Florida came back with him to Jacksonville, and Charles E. Richheimer '28 also returned in time to attend our dinner meeting at the Hotel Seminole on May 4.

George W. Simons, Jr.,'15 presided at the meeting and introduced Dr. Eliassen who gave us a very lucid and interesting account of the hazards inherent in atomic warfare and of the research current at M.I.T. in finding ways to combat the menace to public health.

The Club welcomed two new members: William Stanly Gordon'50; and J. Palmer Boggs'30, newly appointed professor of architectural engineering at the University of Florida. – GERALD M. KEITH '12, *Secretary,* Post Office Box 2695, University Station, Gainesville, Fla.

M.I.T. Club of Hartford

Approximately 50 Alumni and guests from the Greater Hartford area crowded into the University Club on May 9 to renew old acquaintances, hear an inspiring address by Professor Erwin H. Schell'12, and elect officers for the coming year. The new officers installed by John A. Swift'27, retiring president, were: Louis J. Proulx, Jr.,'36, President; H. B. VanDorn'37, Vice-president; Leonard F. Newton'49, Secretary; Robert S. Loomis'46, Treasurer; Franklin S. Atwater'38, Director; Marshall J. McGuire'42, Director; and A. F. Peaslee'14, Representative to the Alumni Council.

"New Trends in Industrial Leadership" was the subject of Professor Schell's enlightening and entertaining remarks. A question by R. A. St. Laurent'21 elicited an elaboration upon plans for the new School of Industrial Management at M.I.T. – Plans for the annual summer outing at Boxwood Manor in Old Lyme, Conn., on June 30 were reviewed by Chairman James B. Leahy'48.

The suggestion was made that monthly club luncheons be started in the fall and it is now under consideration by the officers. Comments upon this proposition will be welcome. Special recognition goes to Thomas D. Green'26 and A. F. Peaslee '14 whose interest and "know-how" sparked the arrangements for this successful banquet; and to the other committee members, Arthur H. Cook'39, James B. Leahy'48 and Lester W. Smith'50.

The mobilization effort has brought many Alumni into this area in recent months; and in order not to miss any notices of important events, they are urged to write their new addresses on post cards and forward them to the Secretary. – LEONARD F. NEWTON'49, *Secretary,* University Club, 30 Lewis Street, Hartford, Conn.

The M.I.T. Club of Lower Ontario

On April 12, the Club met at the Granite Club in Toronto. Some 25 members gathered for refreshments, dinner and conversation. The evening was highlighted by a speech on the "Progress of the International Management Movement," by Harold F. Smiddy'20, now vice-president in charge of management consultation, General Electric Company, New York. Mr. Smiddy graduated from Technology at the age of 20, and his experience has included trips to all the Latin American countries as one of the top management men of the Electric Bond and Share Company. He has held various executive posts in different departments of the General Electric Company, and also serves as vice-president of the Society for the Advancement of Management.

Mr. Smiddy's speech was of great interest to all concerned and was followed by a lively discussion period. President Max Coutts'39 acted as chairman and again demonstrated his faculty of keeping things moving with a happy air of informality.

Max puts everyone at ease by welcoming all members and guests as old friends. Jack Keenan'23 of the Canadian General Electric Company introduced our speaker and he was thanked by the club's Vice-president, Dudley Young'27.

The Treasurer stated that the club's financial position was sound and this report was greeted with interest and satisfaction by all present. Elizabeth MacGill'34, who is now active as a consulting engineer, was on hand to remind the men that M.I.T. *is* a coeducational institution, and they were very glad to see her. The Club does not attempt regular meetings, but gathers every now and then for notable speakers and other auspicious occasions. In the past year or so, meetings have been held when Dr. Compton has been guest speaker, and again when several professors from the Economics Department at Technology came to Toronto for a labor relations conference.

No definite plans have been laid for a future meeting, but judging by the enthusiasm shown at this one, it is a sure bet that all members will be back when the next meeting is called. – G. Ross LORD'32, *Secretary,* Mechanical Engineering Department, University of Toronto, Toronto 5, Ont.

M.I.T. Club of the Merrimack Valley

The first meeting of our newly reorganized Club was held on May 15 at the Andover Country Club. A group of approximately 75 Alumni and guests attended. The head table guests included President and Mrs. James R. Killian, Jr.,'26; Obie Denison'11; Alumni Secretary D. P. Severance'38; Club President and Mrs. Edward Praetz'21; D. K., and Mrs. Webster, Jr.,'19; and Ralph Booth'20.

Obie Denison helped to get the meeting off in true Technology spirit by leading the group in the singing of "Take Me Back to Tech." President Killian was the principal speaker and gave an inspiring talk on recent developments and future plans at M.I.T. Alumni Secretary Severance also addressed the group outlining the early history of the Merrimack Valley Club as well as activities of some of the other alumni clubs throughout the country.

It is hoped that the success of this first meeting augurs well for the future of the Club. Present plans call for two meetings a year to be held in the fall and spring. A committee will meet during summer months to outline a program for the fall meeting. Any suggestions or volunteers for this committee would be most welcome. – CHRISTIAN J. MATTHEW'43, *Secretary,* Woburn Street, R.F.D., Andover, Mass.

M.I.T. Club of Northern New Jersey

Axel G. Jensen, Director of television research for the Bell Telephone Laboratories, gave an illustrated talk on color television before the Club at a Smoker at the Hotel Suburban in East Orange on May 22. The speaker opened by giving a brief resume of the early history of television followed by an illustrated discussion of the distinctive characteristics of the three controversial color television systems; namely, CBS Field Sequential System; the CIT Line Sequential System; and the RCA Dot Sequential System, with special emphasis on the Field and Dot Sequential systems, as they are the ones involved in the current court battle between CBS and RCA.

Mr. Jensen was particularly well qualified to give an unbiased appraisal of these systems, not only because of his wide experience in TV research, but also because the Bell Laboratories are not directly involved in the controversy. After receiving his degree in electrical engineering from the Royal Technical College in Copenhagen, Denmark, the speaker came to America and did his postgraduate work at Columbia University. Since 1938, he has been research engineer in charge of television research at the Bell Laboratories. He holds a number of patents, including one on cathode-ray tube television spot scanners for motion pictures. He is the author of numerous technical articles. He is serving as chairman of the Television Systems Committee and the Standards Committee of the Institute of Radio Engineers, of which he is a fellow. Mr. Jensen proved to be a most entertaining speaker, and the number of questions addressed to him during the usual question-and-answer period demonstrated the interest his talk created. Refreshments and a social hour followed this question-and-answer period.

At the business portion of the meeting, Pop Warner'91, a very recent great-grandfather, was made an honorary lifetime sustaining member of the Club. Pop is the club's oldest known member and its most faithful, as he has attended all meetings since the formation of the Club in 1935.

The following officers were elected: Newton S. Foster'28, President, succeeding Lyman L. Tremaine'23; Grover C. Paulsen, Jr.,'40, Vice-president, succeeding Newton S. Foster; Albert C. Faatz, Jr.,'37, re-elected Secretary; Jack F. Andrews'33, Treasurer, succeeding Grover C. Paulsen, Jr.; Glenn D. Jackson, Jr.,'27, Lyman P. Hill'36 and Ernest C. Hinck, Jr.,'27 were elected for a three-year term to the board of governors, replacing Gordon G. Holbrook'10, William S. La Londe, Jr.,'23, and H. D. MacDonald'22. –ALBERT C. FAATZ, JR.,'37, *Secretary,* 22 Midland Boulevard, Maplewood, N.J.

M.I.T. Club of Puget Sound

The Club held its first spring meeting in the Seattle Yacht Club on May 3, 1951. Approximately 30 Alumni attended. The guest of honor was Robert Hage'40. Mr. Hage is the strategic aircraft sales engineer for the Boeing Airplane Company. His talk on the subject, "Aircraft of 2,000 A.D.," was followed by an informal question session. Following the discussion, a color movie describing the development of the Boeing Model 502 gas turbine engine was shown. The program was greatly enjoyed by all present, most especially by Charles H. Alden'90, who also spoke to the group briefly of his years at M.I.T. Mr. Alden is a practicing architect in Seattle.

Any local Seattle Alumni who failed to receive notice are encouraged to contact H. Merritt Woodward'39, 11026 30th Avenue, N.E., Seattle 55, Wash., to ensure notice of the next meeting. – JAMES W. BARTON'39, *Secretary,* Route No. 1, Box 305, Bellevue, Wash.

M.I.T. Club of Southern California

The May meeting of the governors was well attended by Class Secretaries Walton'13, Powers'23, Grantham'25 and Cullison'41 who added their counsel on the arrangements for the next meeting proposed by Program Chairman Cunningham'27. This meeting promises to bring out the best attendance to date. The letter engineered by Rocky Hereford'24 has brought replies from many who had not contacted the Club for some years. Hereford reported 117 replies which since then have gone to nearly 300. Many have offered to help and it is hoped that we can fill the entire list of class secretaries from these replies.

Row'23 made a lengthy and interesting report as chairman of the Scholarship Committee. He stated that the Honorary Secretaries had received 240 applications for fall admissions. Strauss'38, chairman of publicity brought in the list of 40 students now taking the combined course at Pomona College in Claremont, resulting in degrees from both Pomona and M.I.T. at the end of five years. Row'23 asked for a committee of 10 to contact high school superintendents and other educational executives in this area regarding admissions to the Institute.

Golsan'34 announced the completed first proof of the directory and since then two more proofs have been read, including the advertisements. Golsan'34 has been assisted by Morton'13 in these final touches. The attendance at the directory meeting is in the order of Golsan '34, Morton'13, Cunningham'27, Beebe '10, Row'23, Stanley'44, Strauss'28; and many more have helped a great deal to make this an unusually interesting book.

The Secretary has had the privilege of reading the many interesting comments on the last letter returns. How many Alumni know that Herbert J. Mann, speaking over KFI every Sunday morning at 10:00, is a member of the Class of 1906? We regret to announce the passing of Henry Peabody'78. This leaves Annie G. Rockfellow'89 as representing perhaps the earliest class. We received a fine letter from her this month from her home in Santa Barbara; and we trust that she and some of the earlier graduates will grace the next meeting. Clapp'03 spoke at the Padelford meeting. Thacher'07, in charge of the rubber problems of World War II for the Army, has settled down at La Mesa and will be welcomed at the next governors meeting. Attending officers at the May meeting were: Beebe'10, Mellema'15, Collier'18, Row'23, Hereford '24, Herrick'24, MacCallum'24, Cunningham'27, Thormin'27, Golsan'34, Strauss '38, and Wyle'41. – HIRAM E. BEEBE, *Secretary,* 1847 North Wilcox Avenue, Hollywood 28, Calif. Telephone, Granite 9572.

CLASS NOTES

• 1891 •

Your Secretary sent out notices of our 60th reunion dinner at The Country Club, to all listed addresses. Four of these notices have come back marked "incorrect address." They were to Paul W. England, Fred H. Briggs, Burton D. Blair and Louis A. Simon. The Alumni Secretary, in reviewing their list of past students, has sent in a list of 34 names which they have been carrying as connected with the Class of '91. Six of these names appeared in our class book in 1916, but not since, and I find no record of any of the others. The Worcester *Telegram* of March 20, in reporting a meeting of the M.I.T. Club of Central Massachusetts, shows a picture of our Carleton A. Read, Professor Emeritus, Worcester Polytechnic Institute, among other distinguished men present.

We learned of the death of Charlie Garrison through a letter from Herbert Kimball. Charlie, in pursuance of his hobby, left his home in Santa Barbara, Calif., on April 17 for an automobile tour to Victoria. He died from a sudden stroke at a gasoline station in Port Angeles, Wash., on April 22. He was the grandson of William Lloyd Garrison, the noted abolitionist. He lived in Roxbury during his school days, attended the Roxbury Latin School, graduated from M.I.T. in the Class of '91, and from Harvard with an A.B. in the Class of '92. After graduation, he practiced for a time as a consulting engineer in Boston, and retired to live in Santa Barbara, Calif., and enjoy a fine home with gardens and his great hobby of auto touring. We all remember his interesting stories at our 50th reunion, and the pride he took in preparing and maintaining the schedules and keeping the records of his trips. It is interesting to note that he met his death while in the exercise of his great hobby. He was a grand fellow, prominent in all our class activities, and he was always spoken of at our class meetings. We all will recall the fine piece of work he did in preparing a class book in connection with our 25th anniversary, and also the part he took in the procession at Nantasket in 1917 in celebrating the opening of the new M.I.T. buildings in Cambridge. He brought greetings from California and dressed in a bear skin, the emblem of that state, not withstanding the extreme heat of the day. He leaves a son, Robert Harrison, a petroleum engineer; a daughter, Margaret, Mrs. A. E. Phoutrides; and two grandchildren, Robert L. and Anne W., Mrs. James Warren Gould.

We have also to report the death of Howard Forbes, after his long years of helplessness, following a stroke of paralysis. It has been a pleasure and inspiration to some of our classmates to make occasional calls on him, and we always found him interested in everything and cheerful to a most remarkable degree, in spite of his limitations. He passed out in a coma of several days. Harry Young attended the private funeral. Howard attended the Roxbury Latin School with Charlie Garrison, forming an intimate and lasting friendship. I believe they shared the same office in Boston, as consulting engineers, after leaving school. He was one of the faithful, up to the time of his sickness, always at our class gatherings and contributing his full share to the meetings. In Howard Forbes and Barny Capen we have outstanding examples of fortitude and mental balance in meeting adversity and almost overwhelming disappointment, which commands our admiration and respect. Howard is survived by his most devoted wife and three sons, and will always be remembered for his fine qualities by his classmates of M.I.T. '91. — FRANK W. HOWARD, *Secretary*, 294 Pleasant Street, Watertown 72, Mass., Telephone, Watertown 4-5910.

• 1892 •

The Secretary has received through Carlson the following note regarding one of our classmates: "Professor and Mrs. Charles H. Chase celebrated the 50th anniversary year of their marriage by a dinner, on April 28, at the Towne Lyne House, Lynnfield, Mass., together with their three children and their families, including seven grandchildren. Their son, Donald, M.I.T. '26, has two sons, 16 and 13 years old, and is manager of the rubber and plastics division of Farrel-Birmingham Company of Ansonia, Conn."

Barron DuBois reports that he is back at his summer home in Marblehead and Carlson has returned from his winter sojourn in the south. Otherwise, the Secretary has little to report. — This will not appear in print until long after the event, but we hope that as many of our members as were able attended some of the events on Alumni Day when we expected to talk over plans for our 60th reunion next year. — CHARLES E. FULLER, *Secretary*, Post Office Box 144, Wellesley 81, Mass.

• 1894 •

Again it is the unpleasant duty of the Secretary to report the death of one of the members of the Class who has not only long been a loyal supporter of class affairs but also has had a notable career in professional work and in business. Arthur Loomis Patrick, 79, a retired industrialist, died on May 9 at the Cape Cod Hospital at Hyannis. He had retired from active business in 1943, and took up his residence in Centerville, Mass., where he was active in civic matters and was also a member of leading organizations in Hyannis. Patrick was a native of West Newton, a graduate of the Newton High School, and entered the Institute in the fall of 1890. He chose Chemical Engineering as his professional course, but left at the end of the third year to enter the employ of the American Bicycle Company and the Pope Automobile Manufacturing Company at Hartford, Conn. After a few years here, he went to Elyria, Ohio, to join the Garford Manufacturing Company, and rose to the general managership and treasurer of this company. In 1930, he became treasurer of the Cleveland Automatic Machine Company, and later its president and general manager. At the time of his retirement in 1943 he was chairman of the board of that company.

A lover of New England, he made his home in Centerville on retiring, and took great interest in gardening and in the associated activities in that village and in Hyannis. He was a man of pleasing personality and force of character, and his classmates will feel a high sense of loss that we shall not see him again. Our deepest sympathy is extended to his widow, the former Jane T. Vermilye, and to his son and daughters. His son, Gerard V. Patrick, also attended the Institute, and was in the Class of 1928. One daughter, Cornelia Patrick, resides in Cleveland, and the other, Janet Patrick, in Ponca City, Okla. A sister, Mary Patrick, is a resident of Lexington.

The Secretary is extremely sorry to have missed a telephone call from George Sherman who came to Boston after an absence of many years to attend a reunion of his fraternity, Phi Beta Epsilon. It is many years since George has attended any class functions, but it is gratifying to know that his health, after much hospitalization, has improved to the point of making it possible to travel from Akron to Boston with comfort, and to share in the enjoyments of his fraternity reunion. Our class representative on the Alumni Council, George Owen, was also in attendance at this significant reunion of the Phi Betas.

The Secretary has recently received a high honor in being chosen for the Stephen M. Babcock Award for distinguished service in food technology resulting in advance in national health. This award is accompanied by a generous cash prize awarded by the National Nutrition Foundation. The award was made at the national meeting of the Institute of Food Technologists which met in New York, June 16 to 20. Needless to say, this honor came as a distinct surprise and is deeply appreciated. — SAMUEL C. PRESCOTT, *Secretary*, Room 5-213, M.I.T., Cambridge 39, Mass.

• 1895 •

Life carries its uncertainties. In the last issue of The Review, it was a pleasure to emulate the activities of Mrs. George W. Hayden, who is most active and interested in the future problems of the "retired and aging folks." Now we regretfully learn that George Wellington Hayden, VI, passed away on April 20, 1951, at the Huggins Hospital, Center Ossipee, N.H., from heart failure, after a most distinguished career.

He came to Technology from the English High School, Boston, and we well remember his military mien as one of the officers of the freshman drill batallion. Hayden was a telephone man from first to last; starting with the American Telephone and Telegraph Company as inspector at Philadelphia, Pa., he resigned on December 1, 1898, to go to the New England Telephone and Telegraph Company serving with this company for 38 years. He retired to Center Ossipee, N.H., in 1945, where he continued his active

civic interests until his death. He was one of the first executives in the general offices in Boston, and was division superintendent of western Massachusetts. Prominent in religious, fraternal and civic circles, he was a member of the First Congregational Church at Center Ossipee and the Winchester Unitarian, at Winchester, Mass.; past master of Esoteric Lodge at Springfield, Mass., and a member of William Parkman Lodge at Winchester and of Ossipee Valley Lodge, AF and AM.

He was a prime mover in the organization of the Springfield Rotary Club, its first secretary, and later its president. While at Springfield he helped to organize the Eastern States Exposition. After World War I, he served on a commission to study the practicability of the St. Lawrence waterways. He was responsible for the first transcontinental telephone conversation between Springfield, Mass., and the Pacific Coast. During World War I, he served as captain in the Massachusetts State Guard and organized the first influenza treatment and isolation camp set up during the major epidemic in 1918. At Technology his fraternity life covered membership in Phi Beta Epsilon and Phi Kappa. One of his hobbies was to turn out lovely wooden bowls, and as an expert his work was known far and wide. Mrs. Hayden survives him with a record of one son, four daughters, and ten grandchildren living. The Rotary Club of Ossipee paid tribute to his memory.

Winthrop D. Parker has left Boston and will be found at 1 Charles Street, Reading, Mass. Colonel Harold G. Fitz left New York City and returned to Florida, but this time he is at Hotel Everglades, Apartment 518, Miami, Fla. For some time we have not heard from Billy Hall — Professor William T. Hall, retired — who is located on Snipatuit Road, in Rochester, Mass. We recently discovered an interesting and voluminous account of his life and doings from the April 22 issue of the Sunday *Standard-Times* of New Bedford, Mass. William is a native of New Bedford and has always preferred Massachusetts to any other state. He has been writing, and still is, and is known internationally as an expert in analytical chemistry. He still boasts of the fact that the "toss of a dime determined his career"! We hope Billy will keep on writing. — LUTHER K. YODER, *Secretary*, 69 Pleasant Street, Ayer, Mass.

• 1896 •

These are the last notes for the college year 1950-1951. We wish to take this opportunity of expressing our appreciation for the services of Mrs. Taylor in my office for her valued assistance in compiling the material used in our class notes and also to those members of the Class who have supplied information regarding their personal activities.

By this time, our 55th reunion has become a part of our class history. Marshall Leighton regretted that he could not be with us and wrote: "The worst has happened again, and I am tightly bound here on June business engagements. My schedule gives me constant reminder that we are at war again. My slide rule says that there is about one chance in a million that I will be able to attend our 55th reunion. To say that I am disappointed is a mild and inadequate expression. Please tell the fellows about it."

Charles and Mrs. Hyde celebrated the grand occasion of their 50th wedding anniversary on May 21 at their home on 2599 Buena Vista Way in Berkeley, Calif. — Changes of address: Elmer H. Robinson, Beacon Chambers, 19 Myrtle Street, Boston, Mass.; Stephen D. Crane, Apartment 32, 300 Deal Lake Drive, Asbury Park, N.J.; Robert S. Wason, 27 Osborne Road, Brookline, Mass.

We wish for you all a very happy and restful vacation. — JOHN A. ROCKWELL, *Secretary*, 24 Garden Street, Cambridge 38, Mass. FREDERICK W. DAMON, *Assistant Secretary*, 275 Broadway, Arlington 74, Mass.

• 1897 •

George H. McCarthy, IX, died at his home in Montclair, N.J., on March 26, aged 75 years. After graduation, he was associated with the real estate firm of Gross and Gross of New York City. In 1910, he established his own business with the late George P. Fellows; Mr. McCarthy serving as president of this firm for 20 years. The company went out of existence in the middle 1930's. After giving up the New York City business, he conducted a real estate business in Little Falls, N.Y. For many years he was a vestryman in St. Agnes' Epispocal Church in Little Falls. He moved to Montclair in 1941. He leaves a wife, one daughter, two sons and three brothers. The Class extends its most sincere sympathy to Mrs. McCarthy and the family in their loss. — JOHN A. COLLINS, JR., *Secretary*, 20 Quincy Street, Lawrence, Mass.

• 1899 •

Good news comes in regard to Miles S. Sherrill, V, whose physician says he will completely recover in a month or so from the multiple injuries, including a broken jaw, suffered in an automobile accident the latter part of last year. He says he has greatly enjoyed and appreciated the letters and cards from classmates who read about his accident in The Review. Bernard Herman writes that he hoped to get to Boston to see Miles Sherrill while the latter's jaw was still wired "so that he could do all the talking." Bernard had a heart attack during the winter, but seems to be in good spirits and ready to put some good spirits in him.

Hervey J. Skinner, V, has retired from his active duties in the firm of Skinner and Sherman, consulting chemists, 246 Stuart Street, Boston, and now may be found at his home at 42 Park Avenue, Wakefield, Mass. Rumor has it that he frequently haunts the Bear Hill Gold Club in that city. Prior to his founding his own firm, he was associated with Arthur D. Little, Inc., consulting chemists, Cambridge, Mass.

Parker Hamilton, son of Arthur Hamilton, has recently been promoted to full professor at Antioch College. Arthur himself has been a member of the General Court of New Hampshire for quite a number of years. During the 1950 campaign he overworked, which resulted in his being hospitalized from February until early April. He reports he now hobbles around with a cane and looks like Robinson Crusoe; but he is able to spend some time in his workshop. That reminds your Secretary that when he called on Arthur at the beautiful home he built some years ago (Tommy Robinson, architect) he was shown over that workshop. At that time, Arthur was making a piece of mahogany furniture as a wedding gift. Incidentally, many of the pieces of furniture in Arthur's home were made by him, including a bedstead and a writing desk.

Remember Albert Nathan? He says he is 75 and claims the reason he hasn't joined the heavenly choir is because he needs a few more cracks in his voice (that sounds like him). My own explanation of why I am allowed to live on at an advanced age in apparent perfect health is that I cannot qualify for the upper realms and His Satanic Majesty is afraid of competition in the regions below. Albert reports he is actually a member of the Eastern Star (a woman's organization) and of the Royal Order of Jesters (which "ain't"). When he attends a meeting of the latter, he then returns to the former to get purified and then has to go back to become natural again.

Through the courtesy of his wife, more information is now available in regard to Charles W. Swift, II, whose death was recorded in the class notes for June. Charles was the last of the Swift family native to Provincetown, Mass. He was in the stove and appliance business in Copley Square, Boston, until 1925 and lived in Waban, Mass. He then immigrated to Miami, Fla., where he became active in the insurance brokerage business. He was at one time active in the Boca Raton development and as sales manager for the Peoples Gas Company of Miami. Although not well for the last 19 years, he continued working until three weeks before his death. Charles was a member of the M.I.T. Club of South Florida and of the Insurance Underwriters Association of Florida. He is survived by his widow and a daughter, Mrs. Jean Dugas of Providence, R. I.

Edward Warren Sibley, II, formerly of Hyde Park, Mass., died in St. Petersburg, Fla., on April 7. After graduating from M.I.T. he became affiliated with the John T. Robinson Company of Hyde Park and worked with Mr. Robinson on the development of one of the early types of automobiles, the Pope Robinson. He later joined the engineering staff of the Manchester Arms Company of New Haven, Conn. From there he went with Remington Rand, Inc., in Buffalo, N.Y. During World War II, he designed planes for the Bell Aircraft Company. On retiring, he moved to Florida. — BURT R. RICKARDS, *Secretary*, 381 State Street, Albany, N.Y. MILES S. RICHMOND, *Assistant Secretary*, 201 Devonshire Street, Boston 10, Mass.

• 1901 •

These notes are being written in May when we are still looking forward to our reunion. Therefore you will have to wait for a report on the big event until a fall issue and I will here retail some of the news which has come in concerning mem-

bers of the Class. There is so much of this that only a small amount can be given at this time.

The following is taken from the Brookline, Mass., *Chronicle*: "A Brookline architect, William T. Aldrich, who was last week elected President of the Board of Trustees of the New England Conservatory of Music, has been a member of its board since 1934. In addition to serving on the board, Aldrich has been on the Administrative Committee, taking an active part in the administration of the Conservatory's affairs. He has helped with the buildings, decorations, fine arts and architecture at the Conservatory. Aldrich is a graduate of M.I.T., the Ecole des Beaux Arts in Paris and the Architecte Diplome du Gouvernment Francais. He practiced architecture with Carrere and Hastings in New York, with Bellows and Aldrich and in independent practice. Among his better known works are the Benedict Monument to Music in Providence, the Museum of the Rhode Island School of Design in Providence, the Worcester Art Museum and many residences and stores. He is presently the architect for the World War II Military Cemetery under construction at St. James, Brittany, France."

One of our better-known members John McGann, is now the guiding genius of T. F. McGann and Sons Company who from 1869 to 1946 had a shop on Portland Street in Boston with a sign over the door "They Be Brass Mongers Inside." They are now located in a relatively new plant in Somerville. The firm specializes in ornamental and ecclesiastical types of bronze castings and finishings. McGann bronze is found all over the world. It is on islands in the South Pacific; on churches, buildings and bridges all over the United States; at General Pershing's old headquarters in France and on top of the world at the North Pole.

I have a postal from Frank Smith of Melrose who says: "Have not retired yet. I may when I reach a hundred, also take up golf. Best wishes for our 50th reunion." Harry Benson of Whitman, Mass., has retired. L. D. Chandler is now president of the Abington Savings Bank. The other day I saw Charlie Record who lives here in Wellesley. He retired in 1948 but has recently taken a position in a Wellesley bank. We had a pleasant chat about class affairs. Phil Moore retired from active work in April and will eventually make his home on his estate "Marengo Farm" in Easton, Md. Ed Seaver is giving up his house in Needham and will make his permanent home in Duxbury, Mass., when he is not in Florida.

On account of pressing work in connection with the reunion, the remainder of the news, of which there is considerable, will have to wait until fall.—THEODORE H. TAFT, *Secretary*, 21 Cypress Road, Wellesley Hills 82, Mass. WILLARD W. DOW, *Assistant Secretary*, 287 Oakland Street, Wellesley Hills 82, Mass.

• 1903 •

We have to record two deaths, of some time back, which have just come to our attention. Paul J. Pitner, III, died in July of last year, in Pasadena, Calif., where he had lived for the past several years. No further details are at hand.—George B. Obear, VI, died in 1944. Through the kindness of D. P. Severance'38, Alumni Secretary, we have the following information which came to Dan Patch'02. Mrs. Obear wrote to Patch in March, 1951, as follows: "Dr. Obear died in the Santo Tomas Internment Camp in Manila in November, 1944. He had taught physics in the University of Philippines. He was head of the Far Eastern Commandery of the Masonic Lodge, and was very highly thought of among all his associates." In the first World War, he was a captain in the Sanitary Corps. Besides his wife, he left a son who is an engineer, a graduate of the University of Maine, and a lieutenant in the Engineer Corps, U.S.A. Further information about Dr. Obear and his achievements should be interesting, and we shall try to get it.

Dean Andrey A. Potter of Purdue, has been renominated by the Alumni Association for the position of alumni member on the M.I.T. Corporation Visiting Committee for the Department of Mechanical Engineering.—By the time you read this, the 1951 Alumni Day will have passed. We hope that many of you were able to come to Boston, and that you all will have a pleasant summer. Your Assistant Secretary would appreciate any news that you can write him during the summer.—FREDERIC A. EUSTIS, *Secretary*, 131 State Street, Boston 9, Mass. JAMES A. CUSHMAN, *Assistant Secretary*, Box 103, South Wellfleet, Mass.

• 1905 •

Most of the news this month came about following the mailed announcement of the 46th reunion in June. Herman Eisele, XIII, whom we had not heard from for a long time, writes: I am still working for a living as I have a wife and a government to support. During the last 40 years much of my time has been devoted to consulting engineering work in the steel container industry and at present I am giving practically all of my time to defense developments in this industry. I would, of course, very much like to join some of your reunions in the east, but I find that my extraprofessional activities are limited." Tom Shaw, VI, who reuned with us last June and seemed in good health writes that he is concentrating on the readjustment of control for an impaired diabetic condition, which includes a very restricted diet, and on the control of a heart fibrillation. But he expects to be with us on our 50th.

Erwin Bender, XIII, is still sales manager for the Kinney Manufacturing Company of New York, but expects retirement soon, having joined Kinney in 1911. The Benders have no children, but expect to enjoy retirement at their Cape Cod bungalow in Chatham, N.J. A letter from Mrs. Ray White regrets Ray's inability to attend the reunion as he is too ill. No details. Reginald Fitz, V, who did not graduate with us because of the appeal of medicine, is president of the Perkins Institution and Massachusetts School for the Blind. Percy H. Physeck, I, whose previous address was Olympia, Wash., is now living in Walla Walla, Wash.

George A. Hool, I, about whom we had quite an article in the March issue, died on April 27 at his home in San Rafael, Calif., after a short illness. George came to M.I.T. from Lawrence, Mass., High School and had an illustrious life. He wrote many books on structural engineering. He established the engineering department at the University of Oklahoma, and was professor of civil engineering at the University of Wisconsin. Besides his wife he leaves a daughter, Mrs. A. Hamilton Robb of Portugal; two sons, Sherman E. Hool of San Rafael, and Alan E. Hool of Mexico City; also four grandchildren. Philip P. Manta, II, died in September, 1949. He came from Provincetown High School, took a special course, did not graduate. No details, but he had been in business for himself in Boston for several years.—FRED W. GOLDTHWAIT, *Secretary*, 274 Franklin Street, Boston 10, Mass. SIDNEY T. STRICKLAND, *Assistant Secretary*, 69 Newbury Street, Boston 16, Mass.

• 1907 •

According to a copy of the guest list of the men who were present at the Victory Dinner sponsored by the M.I.T. Corporation at the Waldor-Astoria in New York on May 3, the following '07 men were present at that event: Jim Barker, who was seated on the dais as one of the special guests; John Bradley; Harry Burhans; Herbert Eisenhart; Wheaton Griffin; Roy Lindsay; John McMillin; Hugh Pastoriza; Don Robbins; Ed Sargent; and Albert Stevenson. This list was thoughtfully sent to me by Ed Sargent, who is the chief engineer of the Board of Hudson River Regulating District, Albany, N.Y.—A memorandum from the M.I.T. Alumni Office shows the address of Andre T. Kolatschevsky to be 48 Sussex Place, Slough Bucks, England. I know nothing about his present occupation. For many years he had been located in Antwerp, Belgium, where he was in charge of the library of the Bell Telephone System.

In a 10-page Canadian International Trade Section of the Boston *Herald* on Sunday, May 6, was an article by Clarence Howe, who is Minister of Trade and Commerce and also Minister of Defence Production for the Dominion of Canada, in which he points out that Canada is playing its part, with its aims and objectives similar to those of the United States, in making itself secure against possible attack.—In the May Review in connection with our story about Alexander Macomber, we mentioned the fact that his wife is active in community projects in Greater Boston. In the Boston *Herald* of May 16 was a cut of Mrs. Macomber and the announcement that she had just been elected president of the Boston Young Women's Christian Association.

Harry R. Hall retired on May 31, 1951, as chief engineer of the Washington, D.C., Suburban Sanitary Commission. With the commission since it was established in 1918, Harry was promoted from deputy chief engineer to chief engineer in 1936. During his term of office, the commission constructed the Brighton Dam on the Patuxent River, the first sec-

tion of the water filtration plant at Willis School near Laurel, and the sewage treatment plant on the Anacostia River below Bladensburg. For his work in advancing the waterworks profession, Harry received the George W. Fuller award in 1948 from the Chesapeake section, American Waterworks Association. He lives at 5600 42d Avenue, Hyattsville, Md.—Paul Cummings has moved from Wellesley Hills to 280 Beacon Street, Boston 16.

Although it hardly seems possible, June, 1952, will mark the end of 45 years since our Class ended its undergraduate life at M.I.T. We fully expect to hold a 45-year reunion at Oyster Harbors Club, Osterville, Mass., where we have so successfully held several previous reunions, over either the second or third week end next June. We shall expect to send out notices regarding this event sometime next fall; but, in the meanwhile, we ask you men who are reading this to begin to make your plans so that you can attend this gathering.—BRYANT NICHOLS, *Secretary*, 23 Leland Road, Whitinsville, Mass. PHILIP B. WALKER, *Assistant Secretary*, 18 Summit Street, Whitinsville, Mass.

• 1908 •

Our May dinner meeting, which would normally have taken place on May 8, was given up for two good reasons, the first of which was the annual dinner meeting of the Engineering Societies of New England which was held on May 3 at Northeastern University. As previously mentioned in May notes, our classmate Karl Kennison was to receive the New England Societies annual award and it seemed fitting that some of the Class attend. Due to George Freethy, the following were at the dinner to cheer Karl: Jeff Beede, Fred Cole, Harold Gurney, George Belcher, Winch Heath, Leslie Ellis, Myron Davis, Sam Hatch, Linc Mayo, Nick Carter, Stiles Kedy and George Freethy. Karl's remarks on accepting the award were most fitting as would be expected from an internationally-known hydraulic engineer. Following presentation of the award, we were entertained by Frank Brightman of General Electric with an illustrated talk on China which was most instructive and interesting.

The second reason for giving up the May 8 meeting was an invitation by Joe Wattles and Mrs. Wattles to come with our ladies to a buffet supper at their home in Canton, Mass., on May 19. The lawn party at Henry Sewell's last year was such a success that Joe and his wife felt a repeat was in order. The weather was perfect for a spring evening and the following classmates came with their wives: Jeff Beede, George Belcher, Nick Carter, Myron Davis, George Freethy, Harold Gurney also his son James, M.I.T.'45, who is soon to receive his doctor's degree from M.I.T.) Sam Hatch, Winch Heath, Stiles Kedy, Doc Leslie, Linc Mayo, Matt Porosky, Henry Sewell and of course Joe Wattles.

It didn't take long for the ladies to get acquainted; in fact, many of them have been friends for a long time as it turned out. Then, the cocktail hour with wonderful hors d'oeuvres, many of which must have been original with Mrs. Wattles. Time was taken out to get the crowd out on the lawn for pictures which Joe and I took; and if we had luck, we will show them next fall. Mrs. Wattles had arranged a camouflage hunt to next entertain the guests. Mrs. Winch Heath had the best score and received a floral prize. Then the buffet which I can't describe, except as a smorgasbord supreme; but I must say I don't know when I have seen so much Lobster Newburg. The fresh fruit and sherbet dessert, wonderful cookies, plus real coffee made a perfect meal.

Joe next showed a very interesting talking movie in colors of underwater shots on the Bahama Keys. The group began to leave about 10:00 P.M. after one of the happiest get-togethers we have ever had. Many thanks to Joe and his wife for this wonderful evening. Joe is going to be busy this summer. After 10 days at Atlantic City, he and his wife will spend two months in Europe en tour. Good luck to you both. Get some good pictures for future showings.

Further news about Karl Kennison is that he was appointed a lecturer in Civil and Sanitary Engineering for the spring seminar at M.I.T.—The talents and capabilities of Frederick N. Peirce's wife (Marion Nichols Peirce) were reported in a recent issue of the Boston *Globe*. She is the first woman selectman of the town of Wellesley, and is the newly elected chairman of the board of selectmen. At Mt. Hoyoke, she majored in economics and psychology and taught for a time at M.I.T. before her marriage to Fred. She was persuaded to run as the first woman candidate for selectman in Wellesley by a delegation of citizens who said they had found no one else of the right caliber willing to run. After she finally announced her candidacy, a man ran, too, but she won handily.

We were sorry to learn of the death of Bill Booth's wife which occurred on March 11, 1951. Bill has advised us that the Mary Graves Booth Fund for the Boyden Public Library, Foxboro, Mass., is being established. Anyone wishing to contribute to this fund may send donations to the Foxboro National Bank, in care of Alvah Young. Bill has expressed his thanks to the Class for their sympathy and contributions already received.—We have just learned of the death of John C. Childs, formerly of Strasburg, Pa., which occurred in 1945. We also regret to report the deaths of Walter F. Hudson, Utica, N.Y., and Read I. Ripley, Guilford, Conn., both of which occurred in April, 1951.

We have the following changes of address to report: Maurice E. Allen, in care of Union Bank and Trust Company, Hill Street at 8th Street, Los Angeles, 55, Calif.; Albert G. Emery, Hotel Eastland, High Street, Portland 3, Maine; Herbert A. Cole, Jr., 17 Thompson Avenue, Hingham, Mass.; Norman C. Nicol, 89 Linden Street, Maplewood, N.J.; Paul H. Heimer, 7015 Fordham Court, College Park, Md. —H. L. CARTER, *Secretary*, 14 Roslyn Road, Waban 68, Mass.

• 1909 •

We have received the following from Mollie, XI: "It may be of interest to note that I visited Greece in April in connection with the electrification now under construction and that I am going over there again tomorrow, (May 19), returning about the middle of June. As a result, I shall miss Alumni Day at the Institute but hope that you will remember me to any of our classmates that show up." As you will recall, Mollie was sent to Greece shortly after the war to make a report on the power facilities and needs of Greece.

We have received notice that Edward D. Merrill, I, President of the Capital Transit Company of Washington, D.C., since 1937, is to retire, following a reorganization. Edward is a native of Des Moines, Iowa, and prepared for the Institute at Grinnell College. Before coming to Washington in 1925, he had been an executive of transit systems in Milwaukee, Chicago, and Philadelphia. He is former president of the American Transit Association, second vice-president of the Washington Board of Trade, a director of the Riggs National Bank, and a member of the Cosmos, Metropolitan, and Rotary clubs. We have not as yet learned of his future plans but the Class wishes him every success.

When this number of The Review reaches the members of the Class, the Review Secretary and Muriel will be at Estoril, on the shore, 15 miles from Lisbon, Portugal, attending a meeting of the International Electrotechnical Commission. He is a technical advisor and United States member of Committee Number One, Nomenclature, which includes all the international definitions of electrical terms. Phil Chase, VI, is vice-president of the United States National Committee, which is the U. S. representative of the IEC. Harold Osborne'08, VI, is president. We are planning to sail on June 13 on the S.S. *America* and return on the same boat, arriving in New York on August 6. We plan to visit Spain, France, Switzerland, and England, following the technical conference.

We have received a notice of the death of Herbert R. Petzold, VI, on January 17 at Lawrence, Mass., where he lived on Oxford Street since leaving the Institute, according to our records. We have attempted to obtain further information from his home in Lawrence but so far no reply has been received.

These are the last class notes for the current volume, no more appearing until the November number. We appreciate the splendid co-operation from classmates which has made the notes possible during the year. We also wish all members of this Class a most happy summer. — PAUL M. WISWALL, *Secretary*, 20216 Briarcliff Road, Detroit 21, Mich. CHESTER L. DAWES, *Review Secretary*, Pierce Hall, Harvard University, Cambridge 38, Mass. *Assistant Secretaries*: MAURICE R. SCHARFF, 366 Madison Avenue, New York 17, N.Y.; GEORGE E. WALLIS, 1606 Hinman Avenue, Evanston, Ill.

• 1910 •

It is with deep regret that we note the death of H. N. Crichton on April 21, 1951. The following is from the Boston *Herald*: "Hiram Neil Crichton, 62, superintendent of the Cape Cod canal and a civilian chief engineer with the Army Engineer Corps,

died . . . at his Jefferson Shores home at Buzzards Bay. Mr. Chrichton previously had been in charge of building and improvements on the canal, in the 1930's, and had directed Army construction and fortification projects along the eastern seaboard. At one time, he was with the Boston district of the rivers and harbors department. A native of Lincoln, Neb., he attended Armour Institute, Chicago, and was graduated from MIT in 1910 after majoring in metallurgy and construction. Eight years later, he married Choe Johnson of Huntington, W. Va. His engineering career then engaged him in several projects on the seaboard. Mr. Crichton directed construction of the Wilson dam powerhouse, Florence, Ala., the Veterans' Memorial bridge, Rochester, N.Y., and the C&D canal bridge at Chesapeake City, Md. He was active in the Cape Cod canal widening project and in the building of the Sagamore and Bourne bridges. During the last war, he was in charge of fortifications in the Caribbean area and later supervised flood-control work at New Orleans. He had been stationed at Buzzards Bay during the past three years."

John C. Diehl has been elected chairman of the board of directors of the American Meter Company of Erie, Pa. Charles Wallour, Vice-president of Babson's Reports, had a pleasant spring vacation by taking a cruise to the Caribbean.

Luke Sawyer has been elected president of the Babcock and Wilcox Tube Company. The following is from a news release: "The Babcock & Wilcox Tube Company announced changes in top executive officers of the company following a meeting of the board of directors. Luke E. Sawyer, formerly executive vice president was elected president. Mr. Sawyer became associated with the Babcock & Wilcox Company at Bayonne, N.J. as a student engineer after graduation from MIT in 1910. He went to headquarters of the B&W Tube Company at Beaver Falls, Pa. a wholly owned subsidiary of Babcock & Wilcox, in 1919 to do development work. During the next 20 years he became successively assistant superintendent, plant engineer and general superintendent. He was elected a vice president in April 1948 and became executive vice president a month later, following the death of P. D. White, MIT 1911, then president."

On May 3, seven classmates attended the Victory Dinner at New York's Waldorf-Astoria: Robert Burnett, who has recently retired from business; John Bierer, recently elected president of the Boston Woven Hose Company; Guy Harcourt, vice-president of the Blaw-Knox Company, Gordon Holbrook, retired; George Humphrey, vice-president of the Potomac Edison Company of Hagerstown, Md., Luke Sawyer, and your Secretary. This dinner was a most inspiring affair and was greatly enjoyed by all present. — HERBERT S. CLEVERDON, *Secretary*, 120 Tremont Street, Boston 8, Mass.

• 1911 •

He made it! Our top class industrialist, Irving W. Wilson, XIV, became president of the Aluminum Company of America in late April. We are all very proud of you, Bun. Immediately upon graduation, Bun joined forces with the big corporation, with some misgivings as to whether or not the industry had reached its peak; but certainly they were groundless, for now midway in his 61st year he heads the company, and according to one commentator: "Alcoa thinks he knows more about aluminum than any man in the world." Starting as research technician, he soon became assistant director of research and after serving as a major in chemical warfare in World War I, he returned to Alcoa and soon was put in charge of the company's aluminum reduction plants. Closely following his 40th birthday, Bun was made vice-president in charge of all the company's production. During World War II, in addition to supervising Alcoa's $300,000,000 expansion, he was put in charge of the $450,000,000 worth of plants run by Alcoa for the government. More recently, he was the company's main witness in the government's 14-year-old antitrust suit against Alcoa.

It may seem strange to you folks to be reading, in early July, notes that do not contain a story of the reunion. The notes for this issue, however, must reach The Review office before the reunion date; so, you'll get the story in the final issue of *Thelevener* and a recap in the class notes in the first fall issue of The Review. Since early May, we had these additional registrations: Charlie Hobson, X; G. Arthur Brown, X, and wife; Ken Faunce, VI; Dick Gould, XI, and wife; Bob Haslam, X; Charlie Maguire, I; and John Alter, IV. At this writing, we had 45 classmates and 81 attendees indicated.

General George Kenney's new book, *The MacArthur I Know,* started running serially in the Boston Sunday *Advertiser* and evening *American* in late April. In announcing this prepublication presentation, the *Advertiser* described George as "the man who was greatly responsible for beating Japan to her knees in World War II," adding, he is also "a thorough-going Yankee, despite being born in Yarmouth, N.S., while his Brookline parents were vacationing in the Maritimes." Later on there was a paragraph that brings a pleasing nostalgia to such classmates as Gordon Glazier, VII; Dick Ranger, VIII; Mert Hopkins, I; and your Secretary: "At Tech, where he learned his first profession — civil engineering — he also engaged in a little-known sideline of his career — journalism. During his student days there, young Kenney was the reporter who covered the Boston *Record* and the Boston *Advertiser* on institute affairs. Tech, in those days, was located on Boylston street, here in Boston. . . . Kenney, with other students, engaged in news reporting from the institute, set up a press room on Trinity place and used the location for a clubroom as well as a news gathering center." Good old Tech Press Association!

The book is advertised by the publishers, Duell, Sloan, and Pearce, as a "bold appraisal of the real MacArthur by the four-star general who was his Air Commander in World War II." General MacArthur, himself, has said: "General Kenney is one of the world's outstanding air leaders. The imaginative boldness with which he approaches air development is only one of the qualities which has so greatly endeared him to me. No living man will probably contribute more to the air age now upon us."

Paul Kellogg, IX, who had the misfortune to lose his wife in the early winter, writes from Montreal: "I came to the conclusion early in my period of trial that I wasn't yet old enough to drop things and retire and I, therefore, had to face the future; and being of the type and disposition that I am, I just couldn't face the future alone; so I have been looking around and found somebody foolish enough to want to share it with me. Her name is Doris Steele and we are to be married on May 26." We wish the best of everything to both of you.

Here's another junior 1911 romance. Out in LaGrange, Ill., Doris Jeanne Woodward, daughter of Ed Woodward, VI, and Mrs. Woodward, became the bride of Scott Evans Gibb of Lansing, Mich., on April 28. The bride received her B.A. degree from Michigan State College in 1949, while the groom also graduated in 1949 from MSC and is in government service at the Army Chemical Center in Maryland. They plan to live in or near Baltimore. In the letter that accompanied the wedding clipping, Ed said their older daughter, in California, "has two sons who already give some indications of traits essential in an engineer and we have every hope these boys will in due time matriculate at M.I.T.; if they don't become too strongly embued with that California 'native son' idea and go to Cal Tech, instead." Unfortunately, Ed and his wife couldn't get to the reunion, but they wanted to be remembered to all.

Congratulations to Bill Orchard, XI, and Ralph Walker, IV, who have been nominated for the positions of alumni member on the M.I.T. Corporation Visiting Committees for the Department of Civil and Sanitary Engineering and the Library, respectively. The purpose of each committee is to give the department the benefit of advice and opinions of an interested group other than those actually connected with the Institute's Administration or Faculty. Each committee has three members of the Corporation, two non-M.I.T. members chosen by President Killian, and two alumni members recommended by the Alumni Association with the approval of the head of the department.

Paul Cushman, VI, chief engineer of the L. and S. Bearing Company, Oklahoma City, Okla., writes: "I have a permanent appointment as professor of mechanical engineering at the University of Oklahoma at Norman, 28½ miles south of here. My summer work will be with the Oklahoma Highway Department, from early June to mid-September. L. and S. demands on me now are a few hours a week. Ottilie and I continue very active in Masonic and Eastern Star work, respectively, and all in all the move to Oklahoma has made us busier than ever before. We are square dancing about eight to 10 times a month and never miss going to church on Sunday. I was elected the annual honorary member of Pi Tau Sigma at the university this spring and gave the annual address, 'What You May Be Doing 39 Years Hence,' with Ot-

tilie in the seat of honor beside the dean of engineering. I have given a half-dozen lectures of papers on the manufacture of bearings and a paper at Texas A. and M., and another at Miami A. and M., in the last two years, and put on three bearing exhibits. Oh, yes, Bill Warner, I, and I sat together at the Tulsa dinner last November." What an interesting life you lead, Paul.

A. T. Cushing, I, who with his son, D. A. Cushing, has for some time carried on a consulting engineering business in Kansas City, Mo., writes: "Cushing and Cushing have temporarily suspended business operations, since the senior partner has accepted a position as progress control engineer with the architect-engineer-management firm of Mossman, Patti, Tanner and Mitchell on the rehabilitation of the Sunflower Ordnance Works two miles west of De Soto, Kansas, 30 miles from K.C. I drive there and back daily and keep a finger on the pulse of the entire job of rehabilitation. It is a multimillion-dollar-job and my job is to report on the progress being made and any points on which there is a lag. Then the project manager and I get after the laggards in an attempt to speed production. Please continue to use my home mail address: 5905 Cherry Street, Kansas City 4, Mo."

In early April, according to a fellow Chamber secretary, C. F. Allerding of Mount Vernon, Ohio, Mark Kinney, IV, addressing fellow Chamber members, following a two-week air tour of five European countries, declared Europe's only security lies in military and economic aid from the United States, adding he believed Europe's priceless shrines of religion, art, literature and history can and should be preserved. Revisiting England, where he recovered from wounds received as a British RAF pilot in 1918, Mark said he saw the English "as a people who have lost their freedom to the Labor government and it is tragic to see a great nation like Britain in decline."

Here's a fine, sincere letter from Art Rooney, VI, Youngstown, Ohio: "You have always been a good shepherd to us – the best in keeping your flock together. Perhaps I've been a bit careless in not answering your messages of good will. A few years ago a long period of illness slowed me up and set me back where it seemed like starting all over again. This winter, I slipped on an icy sidewalk and came up with a back that still has a few kinks in it. I'm sure you and the fellows working with you will make the reunion holidays cheerful and pleasant. After again reading Jim Duffy's story of the 1946 reunion, those of us not fortunate enough to be there will know we've missed a lot." Thanks a million, Art, and the best of luck to you.

Had a fine letter from Henry Martin, I, '07, Washington, D.C., who received his degree with us, asking if he could attend our reunion; and, of course, I immediately replied that we'd be delighted to have him with us. Henry wrote: "I have many friends in 1911 – I see some of them when in New York and I well remember the joint meeting that '07 and '11 had at the Manchester, N.H., Country Club some years ago, when I made scores of 12's, 14's, or 16's on some of those heavily wooded long golf holes! Just remember to bring along some good music, including an ancient Technology songbook. It would be great if Professor Schell'12 could be there. I'd like to hear some of your two piano duets like you used to play in the old Tech Union." Old Engineers never die – they just work and play – on and on!

Here, unfortunately, is a sad note. George Cumings, VI, who retired in April after practically lifelong service with the New England Telephone and Telegraph Company in Boston, upon reaching the age of 65, had a severe heart attack on April 27 immediately after attending a Royal Arch chapter meeting in his home town, Winchester. He was rushed to the Winchester Hospital and spent a week under an oxygen tent. His doctor said he had to stay in the hospital at least five weeks. He was apparently in excellent health the day of his attack and was planning to attend a reunion committee meeting two days thereafter in Jack Herlihy's office at Boston Edison Company. Here's hoping you make a speedy recovery, George.

Otis Hutchins, XIV, we learn, has retired from the Carborundum Company, Niagara Falls, N.Y., due to ill health. His home is at 466 College Avenue there, and Norman Duffett, X, reports: "Mrs. Hutchins told me his arthritis bothers him so much that he seldom goes anywhere." To you, also, Otis, best wishes for improved health.

Clarence Dow, I, senior member of C. W. Dow and Son, manufacturers' agent, Rochester, N.Y., writes: "Sorry that conditions have come up which make it impossible for me to be with you at the 40th reunion. Please give the gang my kindest regards and my personal congratulations to you for the fine work you have done as our leader in all our class doings." A fine scenic post card at hand from Jim Duffy, VI, from Sorrento, Italy: "Have come from Pompeii over the Amalfi Drive and am staying tonight in Sorrento. My room number is 11 – any significance?"

An announcement from New England Helicopter Service, Inc., Hillsgrove, R.I., states that "agreement has been concluded by which we have taken over the flight operations of Eastern States Helicopter Service, Inc.," adding: "Of the former employees of ESHS, only Messrs J. Burleigh Cheney [II] president, and Admiral C. L. Andrews, Jr., secretary-treasurer, are authorized to represent that company. At the same time, we are very pleased to advise that both of them are actively associated with us and will assist in the management of our expanded operations." Burleigh's address remains: Post Office Box 255, Providence, R.I.

Met John Alter, IV, and Walter Wilson, X, and the latter's wife, at a golden anniversary meeting of the M.I.T. Club of the Merrimack Valley on May 15 at the Andover Country Club, where I was a special guest and led songs and cheers at an enthusiastic meeting with President and Mrs. Jim Killian as guests of honor. Both Alter and Wilson are in business in Lawrence. John is a member of the architectural firm, Pearson, Alter and James; and Walter is treasurer of Andrew Wilson Company. Dick Richmond, Harvard'53, son of Carl and Helen Richmond, Winchester, will be undergraduate manager of next year's Crimson football team. This is a hard earned honor and our congratulations to you, Dick; also to the proud parents. John Bigelow, IV, has been re-elected secretary of the Marlboro, Mass., Rotary Club. Here in Gardner, yours truly will retire on July 5 as president of the Rotary Club after a most enjoyable year.

President Carl Ell, XI, of Northeastern University, and Development Chairman Edward Dana placed a copper box with Boston newspapers and N.U. documents into the cornerstone of the new $1,500,000 library structure on Huntington Avenue on May 12, with the building scheduled to be completed in 1952. Then, just a week later, at a N.U. alumni banquet honoring Carl on completion of 10 years as head of the university, United States Senator Leverett Saltonstall, principal speaker, gave this tribute to our illustrious classmate: Under Carl Ell, Northeastern University has matured and grown and improved. More people in our commonwealth and the nation have come to know of its particular function in Massachusetts. It is one of the few universities that works on an academic double-shift, with both day and night shifts equally busy. Under Dr. Ell, we have seen the physical growth of Northeastern as well as improvement in its curriculum. He has not only become an excellent president, but he has also become a public-spirited citizen of our Greater Boston community." A well-deserved tribute, Carl.

Two address changes: Hal Jenks, VI, 21 Herrick Road, Newton Center 59, Mass.; and Ed Pugsley, VI, R.F.D. No. 1, Guilford, Conn.

So ends another nine-issue volume of class notes. You'll find a story of the reunion, supplementing Jim Duffy's candid account in the forthcoming *Thelevener*, in the November Review. Again, it has been a real pleasure chronicling these notes regarding classmates and their families; let's hope many more years of the same follow. A happy vacation to all of you and God bless you, every one. – ORVILLE B. DENISON, *Secretary*, Chamber of Commerce, Gardner, Mass. JOHN A. HERLIHY, *Assistant Secretary*, 588 Riverside Avenue, Medford 55, Mass.

• 1912 •

Word has just reached us of the death of Uldric Thompson, Jr., II. He made his home at 82 Buena Vista Drive, Dobbs Ferry, N.Y.

W. A. Rhodes, VI, submits the following which I know will be of interest to you all: "In reply to your call for letters, here is my working life up to date. Twenty-two years with American Telephone and Telegraph Company, 15 years with the Bell Telephone Laboratories, one year sick leave, and one year finishing a book on economics to be entitled, 'Humanology, A Doctrine of Truth and Simplicity.' The book will appear in blank verse."

Our Class was well represented at the Victory Dinner in honor of Alfred P. Sloan, Jr.,'95 at the Waldorf-Astoria on May 3. The following enjoyed a most in-

teresting evening: R. C. Stobert, Frederick H. Dierks, Edward M. Mason, Erwin H. Schell, Ernest Nicholson, Harold G. Manning, Jonathan A. Noyes, Fred Barker, A. F. Allen, Harold D. Mitchell, F. J. Shepard, Jr.

Don't forget that it is your 40th reunion that is coming up next June. If you will let us know where and when you would like to have it, the Davis boys will, I know, do their best to accommodate. — FREDERICK J. SHEPARD, JR., *Secretary*, 31 Chestnut Street, Boston 8, Mass. LESTER M. WHITE, *Assistant Secretary*, 4520 Lewiston Road, Niagara Falls, N.Y.

• 1913 •

Pa Ready, VI, our substantial and genial class president, reports on the dinner at the Waldorf on May 3: "Just got back from the Victory Dinner. It was a very impressive occasion. Just the right amount of lubrication to break the static friction, a dinner fit for a king (but no good for a poor human bound by a diet) congenial companions, much reminiscent conversation, followed by a very wonderful tribute to Mr. Sloan by Dr. Killian and Dr. Compton, and a very impressive response by Mr. Sloan — all topped off by an interesting talk by Paul Hoffman all under the able auspices of Marshall Dalton'15. So much for the ceremonies, getting closer to home: at our table were Paul Cogan, Ben Munch, Don VanDeusen, John Livingston, Tom Byrne, Gene Macdonald and Charles Edison. Max Waterman and Bob Weeks were near us."

Professor Al Townsend, II, reports: "Max Waterman was here for a day earlier in the month — as a member of the visiting committee for the Department of Mechanical Engineering — as you know, Max is the big wheel at Singer Manufacturing Company. Max's son has gone back into the Army as an officer in the Engineer Corps. I see Jim Russell once in a while. He and his son Dan come over and have lunch with me occasionally. By the Boston paper: Hilding Carlson has turned his Aircraft School facilities over to Boston University — and has become dean of their technical faculty. Achard is seen around here once in a while, when he comes to attend evening meetings of his reserve officers group. He is in charge of his project."

After his long silence it is encouraging to get this short note from Dave Nason, XIV: "Have just returned from Buenos Aires, had 11 days there and was away from the office only two weeks. Sure, I would rather have gone by boat but this particular trip had to be a hurried one." Dave has contributed much pep to our class notes and I hope he is again back to stay with us. — Here's a real "howdee do," from E. E. Smith, VII: "Please note the marriage of a 1913 man in 1949, to Dorothy E. Jennings, the former secretary to the general superintendent, Department of Water and Sewage Treatment of the city of Lima, Ohio (for lo, these many years). Also please note the birth of William Edward Smith on June 30, 1950, who should have his direction aimed at M.I.T. around 1968. If you subtract 1913 from 1972 you will come up with the answer that there seems to be a generation skipped, but William will make the grade, we're sure." Congratulations, Ed, I am pulling hard for William Edward to make the Class of '72.

From the Vice-president and Chief Engineer of Formica Company, Cincinnati, George Clark, II: "I am enclosing $1 for class dues in reply to your letter of January 16. In answer to your request for news, along with my associates, I am trying to assist in converting the output of the Formica Company to satisfy the current emergency. This operation requires that we change about 75 per cent of our capacity from civilian products to the industrial materials that are required for defense purposes. A year ago, we started building a new seven-million-dollar plant, located a few miles from our current operation. We are hopeful that one-third of this plant will be in operation during the current year. If history repeats itself and if we have an intense defense program or complete mobilization, the Formica Company will be completely sold out on defense items."

Thank you, Nat Sage, I, for the very interesting news about your large family: "The Sage clan continues as before; Nat with the D.I.C. (Division of Industrial Cooperation, at M.I.T.) Mrs. Nat on a committee or two, mostly to do with the women students. All five children are now married. Nat, Jr., has just acquired his M.S. in geology and is working for his Ph.D., while Mrs. Nat, Jr., is after a law degree. One son-in-law is on his own in scientific ceramics after developing the tube for the synchrotron in the Ceramics Laboratory at Technology under Ted Norton's direction. One daughter has three children, lives in Pennsylvania, where her husband is in business; another, closer to home, lives in Dedham with her three children and her husband does research at M.I.T.; the youngest girl with her two babies has come back to spend a year with mother and dad, while her husband has an appointment at Harvard Medical School. The whole family continues to enjoy their farm on a Vermont hilltop, putting in as many week ends as they can, and gathering for longer stays during the summer."

D. P. Severance'38, Secretary-Treasurer of the Alumni Association writes: "Eugene L. Macdonald, I, has been nominated by the Alumni Association for the position of alumni member on the M.I.T. Corporation Visiting Committees for the Department of Civil and Sanitary Engineering. The Corporation's Visiting Committees are composed of seven members: three members of the M.I.T. Corporation, two non-M.I.T. members chosen by the president, and two M.I.T. alumni members recommended by the Alumni Association with the endorsement of the head of the department. Ordinarily the committees meet once a year on a date convenient to the members, frequently at the end of the calendar year or early in June. The purpose of the committee is to give the department the benefit of advice and opinions of an interested group other than those actually connected with the M.I.T. Faculty or Administration." Max Waterman, II, see above, is on the Visiting Committee for the Department of Mechanical Engineering. Walt Muther, I, has removed from Oakland, Calif., and is with the Potter Press, 515 South Street, Waltham, Mass. Welcome back, Walt, and let's see you. — William Johnstone, of East Milton, Mass., died on February 19, 1945. Francis S. Curtis, VII, passed away on January 9, 1950. — FREDERICK D. MURDOCK, *Secretary*, Box 788, Pawtucket, R.I.

• 1914 •

One of the finest informal get-togethers in the class history was held at Charlie Fiske's apartment on May 3. This was in connection with the dinner honoring Mr. Sloan'95 for his great contribution to the Development Fund drive, and also those who took part in the drive. Twenty '14 men met with Charlie before the dinner, which was held at the Waldorf-Astoria, and after the dinner many returned to his apartment for a postprandial discussion of class affairs. George Whitwell had expected to attend, but at the last minute was prevented from doing so by a meeting of the U. S. Chamber of Commerce, of which George is a director. Those who first assembled with Charlie at his apartment and later attended the dinner were: Affel, Atwood, Bates, Blakeley, Chatfield, Dinsmore, Hadley, Kerr, MacCart, Ober, Parsell, Peaslee, Perry, Rauber, Snow, Spitz, Wilson, and your Secretary.

We just mentioned why George Whitwell could not make it. George has just been re-elected for a second term of two years as a director of the U. S. Chamber of Commerce, representing the states of New York, New Jersey, Pennsylvania, and Delaware. Just as an additional side line, George is a director of the National Association of Manufacturers for the state of Pennsylvania, and is honorary chairman — after a whale of a lot of work as active chairman — of Junior Achievement, Inc., for the Philadelphia area. George reports as an aside that he has six grandchildren and still draws his pay as vice-president for sales of the Philadelphia Electric Company.

The May 14 issue of *Chemical and Engineering News* carried a photograph of E. C. Crocker speaking at the Chemicals Specialties Manufacturers Association's midyear meeting in Chicago on the subject of "Nature of Stinks." — A recent letter from Dan Hayward discloses that he is still with Production Management Engineering Associates, and actually has been since 1927. He is vice-president, and his work takes him up and down the Pacific Coast, which is quite a jump from his former home town of Bridgewater, Mass. Dan's new home is in Covina, Calif., just out of Los Angeles.

Louis B. Black, who was formerly with the Compressed Air Equipment Company, is now with the Dixon Valve and Coupling Company of Toronto, Canada. Seymour Spitz tells us that he has a grandson, William Taylor Spitz, who is a potential 1973er for the Institute. The father is S. J. Spitz, Jr., M.I.T. 1943. Walt Keith writes that currently he and Mrs. Keith are footloose and fancy free, as they have left on a nearly three months' trip to Europe and expect to return in July. Walt says his foreign business is expanding rap-

idly, and serves as a good excuse for a vacation in Europe. Walt reports a granddaughter and a grandson, Walter P., 3d. The father is Walt, Jr., M.I.T.'41, who has been called back to active service as a captain of Ordnance.

Frank Somerby is still thinking of last summer when he and his family toured 14,000 miles around this U.S. and never had a puncture or breakdown in a 1936 Chevvy. How on earth can Charlie Fiske's company expect to break even on such performance! Just to check his luck, Frank is heading from New York to the West Coast again this summer. In the winter Frank is still with the Buckley School, a private school in New York City.

It is with great regret that your Secretary has just learned from Donald Dixon that he suffered a cerebal hemorrhage last December. Fortunately, after a long siege of hospitalization, he is now around again on a part-time basis. He also reports that he has become a grandfather several times. Donald would welcome a visit from any '14 men passing through Monument Beach, Mass., where he is the chief factotum of the local water district.

Unhappily, few issues of these notes are without reference to the death of a classmate. Ernest Solon Shurtleff of Course III died as the result of a crash of his private plane on April 2, 1951. Shurtleff came from Concord, N.H., and was well known to Leigh Hall and Boggs Morrison, who also come from that city. He was president and manager of the Sanitary Steam Laundry of Pikesville, Ky., and did considerable flying about the country in his private plane. Leigh Hall reports that he occasionally landed at the Concord, N.H., airport. At the time of his death, he was flying from his farm in Virginia to Pikesville, Ky., and became lost in thick fog, eventually crashing into a mountain side. On August 25, 1921, Shurtleff married Florence May Elliott, who survives him. — H. B. Richmond, *Secretary*, 275 Massachusetts Avenue, Cambridge 39, Mass. Ross H. Dickson, *Assistant Secretary*, 126 Morristown Road, Elizabeth, N.J.

• 1915 •

Despite a wind and rain storm on the night of May 11, these 27 classmates and their guests gathered at the Boston Yacht Club, Rowes Wharf, Boston, for a delightful dinner and enjoyable evening: Bill Brackett, Harold Colby, John Dalton, Fanny Freeman, Abe Hamburg, Loring Hayward and his son Loring, Jr., Frank Herlihy, John Homan, Clive Lacy, Larry Landers, Carl Lovell, Azel Mack, Archie Morrison, Pete Munn, Frank Murphy, Wally Pike, Pirate Rooney, Henry Sheils and his guest Jim Tonra (Brookline, Mass., chief of police), Jac Sindler, Ed Sullivan, Elmer Waters, Max Woythaler and his guest, Louie Clemens. What a Class!

From the fine young Class of 1943, Gene Eisenberg and Jim Hoey came as our guests. This class, with Gene Eisenberg, Bill Place and Bill Lacy as sons of 1915, is modeling and organizing itself after 1915, and we want to help them all we can. They've made an energetic start with a class dinner at the same Boston Yacht Club on June 8. All the best to them. What better model could they take than 1915? What a Class!

At that dinner we welcomed these "long-time-no-see" men: John Dalton, Frank Herlihy, Carl Lovell, and Harold Colby who has completely recovered from his long serious illness of a year ago. Long-distance honors were hotly competed for by John Homan, Beverly; John Dalton, Lawrence; Loring Hayward and Loring Jr., Taunton; Elmer Waters, Marblehead; Max Woythaler, Framingham. It's always a pleasure to welcome guests and it means a lot to have sons of 1915 with us. Several of our regular attendants were absent of necessity, otherwise we'd have had a record attendance — wonderful as it was. From the dinner we sent cards signed by everyone to Speed Swift and Gene Place, both in hospitals. We've no report on Speed's eye cataract operation but assume it was successful. After such a valiant fight for recovery, Gene contracted jaundice and had to return to the Massachusetts General Hospital. However, with his usual show of grit and determination he has again fought his way back and when we saw him on May 20 he was about to be sent home. Surely Gene deserves a break and some very good luck to help him recover quickly and completely.

Middle-aged success must be retiring the boys to farm life. Thayer MacBride has moved to Rocky Reach Farm, North Marshfield, Mass., and Henry Leeb to Walnut Hill Farm, Gladstone, N. J. Wasn't there a popular song during our youth, "How you gonna keep them down on the farm?"

At the fund drive Victory Dinner in New York early in May, the Class of 1915 was well represented by Jack Dalton, Chairman, Hank Marion, Frank Scully, Max Woythaler, Henry Leeb, Boots Malone, Bur Swain, Ed Stearns, Bill Spencer, Vince Maconi, Gabe Hilton and Ben Neal — surely a fine representation and wide spread, geographically. — The cocktail party for ladies last June, after our return on Monday from Coonamessett, was so successful that Wally Pike and his fair committee of Barbara and Virginia Thomas were pressed into running a dinner party for the ladies at the Hotel Vendome, Boston, on June 9. Details will be reported in the fall notes.

After Johnnie O'Brien visited Bill Brackett at the New England Baptist Hospital, he wrote to me: "Next time you tell me to go and see a classmate who is sick, be sure he really is sick. Bill Brackett had to be kicked out of that hospital. As a result, the hospital is now able to graduate 60 nurses. Why not hold the next class reunion on the hospital grounds?" Ah, that sharp Johnnie!

The April, 1951, issue of *Plastics Industry* carries an interesting story of Ben Neal and the history of his company, Norton Laboratories, Inc., Lockport, N.Y., showing an excellent picture of Ben. He writes: "I will admit that my personal correspondence has been at a low ebb for the last two months; but with a lot of problems, I do get pretty well boiled out during the daytime and when I get home at night I'm too lazy to take my pen in hand. Most certainly the latchstring is always out at Lockport and you and Fran most cordially have an invitation in perpetuity to make Lockport a stopping-off place, even if it does involve these expensive dinners at the Buffalo Country Club. Anyhow, another year wouldn't be a year unless you and Fran stopped off to see us, and in accordance with the attached card, we will count the days until you appear. If you think you can do it, bring the Wink Howletts along with you and I will do my best on Bill McEwen and Gabe Hilton. We met Virginia Thomas and a party of girls at Williamsburg, Va., and took some pictures of the fancy carry-all we rode in together, which I will show you when you get here. Incidentally, many thanks for the reunion slides that you sent to me, and I also have some that I took that you might be interested in, so be sure and let me show them to you when you are here. We also met Max Woythaler and his wife and their son and son's wife at Williamsburg. I didn't have much of a chance to talk to him, which I regretted, but we first met him when he was having dinner and didn't want to interrupt, and the second time we were on our way and so was he and his party. I have your card on Bill Brackett and will try and write to him today. Be sure and give my best regards to Gene Place. Give my very kindest regards to Barbara Thomas. Who knows, I might not even have had a letter from you if she hadn't been kind enough to type it for you. Tell Frannie that I hope she still is doing that grand job in trying to make something out of you, and this I do appreciate. Warmest regards to you both." We are looking forward to our annual summer visit with Ben and his wife and if the Howletts, Hiltons, Neals, McEwens and Macks ever get together out there it will be an event to write about. Niagara may really dry up *that* night.

Our sympathy goes to Charlie Williams for the sad loss of his wife, Hope, who passed away this spring. We have no details of the following deaths but have sent class sympathies to the familes of these classmates: Julian K. Ferguson, Louisville, Ky.; Alfred E. Bannister, Algonac, Mich.

Here endeth the column for this year. A happy and healthy and enjoyable summer to you all. Yours for 1915 — Azel W. Mack, *Secretary*, 40 St. Paul Street, Brookline 46, Mass.

• 1916 •

This is the month when the Major Leagues hold their annual All-Star baseball game. We would like to take our hats off to the many "All-Stars" in our Class who, because of their willingness to write to us, have made it possible for us to complete another very enjoyable and successful year with our column in The Review.

You might be interested in seeing a list of the members of our Class who attended the M.I.T. Victory Dinner at the Waldorf-Astoria last May 3. Here it is: Joe Barker, Bill Barrett, Steve Berke, Walt Binger, Steve Brophy, Art Caldwell, Clint Carpenter, Jap Carr, Sandy Claussen, Ralph

Davies, Jim Evans, Bill Farthing, Jack Freeman, Barney Gordon, Tom Holden, Russ Lowe, Earl Mellen, Al Pettee, Francis Stern, Norm Vile, and Ed Weissbach. Both your Secretary and your Assistant Secretary planned to attend this function but at the last minute found it impossible to be there.

We would like to mention that there was a prereunion dinner for the members of the Class in the Greater Boston area on May 17 at Joseph's Restaurant in Boston. The turnout was excellent and included: Steve Berke, Tom Berrigan, Bob Crosby, Karl Engstrom, Al Giles, Jack Hickey, Dick Hunneman, Emory Kemp, Joe Minevitch, Izzy Richmond, Doug Robertson, Harold Russell, Hy Ullian, and your Secretary. Nat Warshaw and Bill Drummey were not able to get there. Your Secretary thought it was a wonderful evening and was particularly pleased with the way the fellows volunteered suggestions and showed unlimited enthusiasm for the then forthcoming reunion.

Our roving reporter brings in news that Steve Brophy spent two weeks in the West Indies, Walter Aiken enjoyed a short stay in Florida and Rudolf Gruber is now making plans to spend a little time in Trinidad, B.W.I. — It is interesting to learn that Murray Horwood has been awarded a World Health Fellowship for study and observation in Europe during June, July and August of the current year. He plans to inquire into teaching, research and practice in the field of environmental sanitation. According to his present plans, he will visit England, Finland, Denmark, The Netherlands and France. We hope that your trip will be both pleasant and enlightening, Murray. — Steve Brophy was recently awarded one of the two annual Syracuse University Medal Awards for distinguished service in advertising. The occasion was the Advertising Day banquet that climaxed the third annual Advertising Week (April 2-6) of the city of Syracuse, N.Y., nationally-famous event sponsored by the Syracuse Advertising and Sales Club and Syracuse University.

Tom Berrigan has been reappointed by President Truman to the Water Pollution Control Advisory Board of the United States Public Health Service. As a member of the board, Tom will join with others in recommending policies to be established in connection with pollution abatement in the different major river valleys of the United States. It is the duty of the board to review the duties, policies, and programs of the Public Health Service as undertaken under the authority of Public Law 845 of the 80th Congress. — Charlie McCarthy, Vice-president of United Aircraft Corporation received a pin indicating 25 years with the corporation. Mac joined Chance Vought Aircraft in 1926 as executive engineer and served successively as chief engineer, engineering manager, assistant general manager and general manager of Chance Vought Aircraft before becoming vice-president of United Aircraft in 1943.

We were glad to have the following word from Edward Peters in Newton Highlands: "Have been with Stone and Webster Engineering Corporation in Boston for over 10 years in the mechanical engineering design of large power stations, my lifelong interest. My eldest daughter, Jean B., has her M.D. degree from the University of Rochester and is now engaged in research work at the University of Washington. My youngest daughter, Sylvia A., was married to Robert D. Agler, a civil engineer. Both are graduates of Swarthmore College. Mrs. Peters and I are grandparents of Alison Ann Agler, now just over a year old. My son, John B., is completing his junior year at Boston University. Mrs. Peters and I are now pretty much engaged in remodeling a 150-year old house at Duxbury, Mass., where we spend our summer months."

It is a long time since we have heard from Chet Richardson but just recently we received a nice letter from him giving a pretty complete story on what he has been doing since the Boston days: My personal history since 1916 started with electric furnace work in Niagara Falls. In September, 1917, I was joined by the Army, but soon got put into the Chemical Warfare Service, and spent the war in Washington on gas mask research. A half-year back in Lynn for the G.E. was followed by about four years in Washington at the Fixed Nitrogen Research Laboratory, working mostly on synthetic ammonia. In 1924, I came to Niagara Falls again, and have been here ever since. From '24 to '48 was with Mathieson Chemical Corporation. In '48 they had a reorganization, and a good many of the research department personnel were 'divorced,' including myself. At present, with three other chaps, we are trying to get a new chemical manufacturing company going, Trichemco, Inc., Niagara Falls, N.Y., starting with insecticides. Was married in 1924 to Pearl Mae Darcy, from a village near Washington, D.C. Have two girls and a boy, the youngest girl in Youngstown High School, the others looking for their 'walk in life.' Since 1937 have lived on a fruit farm near Youngstown, about 13 miles from downtown Niagara Falls. Mighty interesting and enjoyable, but haven't seen any of that prosperity the newspapers and magazines say the farmers are enjoying. Neither have the neighbors. Occasionally see three other '16 men in the vicinity: Ray Brown of Comstock and Wescott, Pete Mahlman of Carborundum, and Earl Hauman of Exolon Company of Thorold, Ontario, a few miles across the river in Canada. Congratulations and good luck; doubt if I can make it at Coonamessett."

Here's a letter from Cy Guething, which, although written in answer to our mailings on the reunion, has some thoughts well worth considering: "Have been looking forward to this reunion for a little more than five years. It is quite a long walk to the Cape, but if my legs hold out, I'll be there. It is now later than we think, and I presume it becomes more difficult to plan for the reunion. In place of the baseball diamond we need shuffleboard courts, for the golf course — putting green, and for the straight backs — rockers. In the alumni news columns it would be nice to read 'shorties' from more of the boys. I should like to learn of some menus from those who get the Sunday morning breakfasts. Not that my wife is complaining. You will all be pleased to learn that Gene Lucas dropped me a line advising that he plans to join us at the reunion. Am still on my son's payroll. Rather busy selling machine tools for the defense program." Your suggestion about the "shorties" is appreciated, Cy, and we certainly hope that those who read this column will follow your lead. It would be heart-warming to find that when we start writing our column in November for the next year our in-basket would be filled to overflowing.

This letter from Joe Meigs could hardly be called a "shortie" but nonetheless is more than welcome: "You really asked for it in your letter of November 30, 1950, and, therefore, will have to share the blame. In the first job I had (1916-1917) I made nitro compounds from asphalt distillate at the Barber Asphalt Company laboratories at Maurer, N.J., and thought they might be useful as explosives in War No. 1. My researches were terminated when one day in the spring of 1918 I received a personal invitation from no less a personage than the president. Feeling greatly flattered and honored by the invitation, I promptly responded and in no time at all found myself at Camp Devens, Mass., engaged in the romantic, exciting duties of drilling, rifle range, hiking and kitchen police. It was, of course, impossible for such a distinguished person to remain there incognito. Colonel (Professor) Walker, well-known to and loved by all M.I.T. men, 'discovered' me and I was immediately transferred to Edgewater Arsenal to assist in making 'poison gas.' The purpose, of course, was to discourage the Kaiser's ambition to become a World Emperor. (Colonel Walker's perspicacity in securing my aid was soon apparent because in the fall of 1918 the Kaiser fled into exile.) Colonel Walker must, however, share the credit with our classmate Ray Brown, one of the famous 1916 track athletes. Ray decided that my genius could not attain its full stature on the diet then prevailing (cow beans and tapioca pudding, usually served separately but on one memorable occasion, inadvertently mixed). He recommended my elevation to the exalted rank of second lieutenant. Soon I found myself in the palatial officers' quarters of the 4th Battalion, where the diet included such delicacies as broiled lamb chops, steaks, and so on. I was placed in charge of the manufacture of sulfur chloride, an intermediate in the production of mustard gas. (By the way, where is Ray? He attended the 25th reunion and since then I haven't laid eyes on him.)

"Ray's uncanny ability to recognize and foster unusual talent promptly bore fruit. By Labor Day, 1918, the sulfur chloride plant was in full blast and by the end of October, the reactors were loaded with about 50,000 tons of S_2Cl_2. As above indicated, the Kaiser (the German emperor, not the automobile magnate) being dismayed at the prospect of being deluged with mustard gas, quit, and the war ended. To be perfectly fair and impartial, some of the credit for winning the war should go to Bill Leach, also of 1916, because he is the man who made the mustard gas, by reacting the sulfur chloride with ethylene gas. So the war was over.

What to do with the 50,000 tons of sulfur chloride which remained in storage over and above that which Bill Leach had converted into mustard gas? No one wanted to have anything to do with either of those commodities. I did some research work, reacted the sulfur chloride with another 'pleasant' chemical (carbolic acid or phenol, that is) and produced a nice transparent resin or plastic. It had only one slight drawback. It was so brittle that there was no use for it. The operation was a brilliant success but the patient (that is, the resin) died. Truly great chemists never let a little thing, such as lack of commercial success, act as a deterrent to progress, so I made another resin, this time by reacting phenol with common ordinary sugar, preferably dextrose, which was then, and still is, quite cheap. The well-known and famous Bakelite resin is made by reacting phenol with formaldehyde, which then cost something like 40 cents per pound as compared with about four cents for dextrose. Formaldehyde is used to embalm dead bodies. Sugar is used to sweeten live bodies. So, you can readily see that the 'flash of genius,' which according to Mr. Justice Douglas is the criterion of invention (See Cuno etc. v. Automatic etc. 314 U.S. 84), was going strong. In fact, it was much more than a flash. It was practically a flame thrower. A number of patents were granted, covering the process and product. There was only one 'fly' (or is it flaw) in the ointment. The price of formaldehyde took a nose dive and wiped out the advantage of the low cost sugar (dextrose). That was due to the researches of some Germans who, unfortunately, did not follow the Kaiser into exile. Of course, that occurrence could not have been foreseen even by the exercise of the greatest genius.

"So you see, in those days, I was a gambler; in fact, gambling of that kind was quite widely prevalent all over the U.S. and had been for many years. (That was long before the Kefauver Committee.) That committee is not interested in the kind of gambling I am talking about, although other branches and departments of the government have, since 1932, tried to discourage new enterprise by levying confiscatory and inequitable taxes and attacking the Patent System. What I am talking about is the kind of gambling taught at M.I.T. and other (should I say, less distinguished?) institutions of learning. The teaching staff at M.I.T. never taught me not to gamble. On the contrary, they taught me that men such as Goodyear, rubber vulcanization; Howe, sewing machine; Whitney, cotton gin; Bessemer, steel converter; Edison, incandescent lamp, et al.; McCormick, mechanical reaper; DeForest, audion; Baekeland, Bakelite, do you remember his talk at the 1916 class dinner?; and many others — as mentioned, I was taught that such men were gamblers who played for high stakes, and won. My experience, however, gave me a vision which enabled me to look about 25 years into the future. Here is what I saw: There would be a complete change in the theory of government. The government would decide that private gambling was too profitable to be privately owned and should be the sole prerogative of the government or, at least, be closely controlled by it. Acting on that prescience I decided to 'reform.' The idea was to abandon playing the role of principal and to act as patent attorney or counsel for those who had the knack of being luckier than I had been.

"The 'reformation' began with taking immediate steps to become a patent lawyer. Now, in this country, there is a quaint custom that to be a patent lawyer you have to be a member of THE BAR; not any bar such as the Commodore bar, the Biltmore bar, and so on, but a place called THE BAR, which is really not a bar at all, but rather an association having a more, or less, restricted membership. In fact, you have to pass, in New York State, examinations successfully in order to become a member; and, brother, nothing I learned at M.I.T. equipped me to pass *those* examinations. So I went to Fordham Law School, acquired the necessary information, passed the examinations and became a member of the bar of the state of New York. I have been practicing as a patent and trade mark lawyer for about 20 years. During that time, I have learned at least one thing, to wit: the patent law profession is entirely dependent upon gamblers of the kind abovementioned. In other words, no gambling, no patents. However, I have managed to pay the rent and overhead and have enough left over for things like income tax, and carfare to and from Larchmont. It follows, therefore, that gambling is still going on. My private fortune teller advises me that it will continue in the future as long as it has in the past and that is not less than 800 years. I greatly enjoy my work and the opportunity to participate in fostering the kind of gambling that has made this country the best country of the world in which to live, possessing the highest standard of living known to history. For example, Elmer Wanamaker, of the Class of 1916, is president of one of my clients, Electro Manganese Corporation. He and his associates have created and established an industry which produces 99 per cent pure manganese metal from manganese-containing ores. As you know, manganese is a vital material not only for military but also nonmilitary purposes. Electro Manganese Corporation is a typical example of the general formula: $X=G+C_1+C_2+T+I+B$, where X is new industry or enterprise; G is gambling or the gambling instinct; C_1 is incentive capital; C_2 is courage; T is Technology (existing knowledge); I is invention (creation of new products, processes, and so on); and B is business ability. Is it not true that this formula symbolizes the history of M.I.T. from its beginning? Is it any wonder that we were never taught that component G in the above formula is a sin?

"At the last reunion a prominent member of our Class (he is now a board chairman) submitted his opinion that patent attorneys constituted the 'lowest form of life,' or words to that effect. Maybe so, maybe not. I admit that it is not an easy life and I envy the other members of the Class. The class notes give me the impression that a goodly number of members are either board chairmen or presidents, or, at the very least, vice-presidents of various industrial empires, with scores of assistants eager and willing at the drop of a hat to attend to the boss' duties so that he can get away and relax for a week, a month or even a year, fishing, hunting, playing golf or even attending a class reunion. A lawyer, like a doctor, is on call about 365 days a year. For example, I have been playing with the idea of attending the 35th reunion. Now I find there is a court hearing on June 11 which apparently cannot be postponed. (Flash! Hearing postponed; Joe goes to reunion.) So you see where that leaves me. To bring this story not only up to date but also somewhat into the future, I am in the process of setting up my own law offices, in the same area of the city where I am now located, and will be in them within a couple of months or so. Therefore, when I write to you again with more news (which should accumulate prior to 1986, 35 years from now, because by then the government will be back in the hands of the Republicans and the aforesaid species of gambling will be encouraged) my letterhead will not be the one you see on page one of this letter. Incidentally, there are a couple of other M.I.T. men in this firm, and, of all things, a Harvard man. Although successful, he has not achieved his success by following the current advice to attain that goal, to wit: 'Graduate from Harvard, go to Washington and turn left.'" Phew! Don't wait so long the next time, Joe.

With deep regret, we report the death of Ray Wagner from cancer and the passing of George Crowell's father, Thomas F. Crowell.

The next issue of The Review will be in November, at which time we hope to be able to give you a play-by-play description of the 35th reunion. In the meantime, write those letters. — RALPH A. FLETCHER, *Secretary*, Post Office Box 71, West Chelmsford, Mass. HAROLD F. DODGE, *Assistant Secretary*, Bell Telephone Laboratories, Inc., 463 West Street, New York 14, N.Y.

• 1917 •

On May 3, a Victory Dinner was held in New York at which were present many of the principal workers in the successful campaign to raise $20,000,000. It was a memorable meeting. As was to be expected, '17 was well and ably represented. Messrs. Lunn, E. P. Brooks, Lew Douglas, and R. Stevens sat above the salt; while the group at their feet included: A. R. Brooks, G. R. Stevens, Loengard, Groves, C. D. Proctor, K. E. Bell, Blanchard, Dennen, Aldrin, Holton, Hunter, Hyde, Knight, K. M. Lane, Lobdell, McNeil, Meloy, Spalding and Wenzell. One of the high points of the evening was official presentation of the Dean of the new School of Industrial Management, Edward Pennell Brooks of Chicago, Virginia and Westbrook, Maine. Dean Brooks responded delightfully to his introduction and felicitously noted this was the first time that Sears had been called to ship a Bean to Boston!

Perhaps many of you noted in a recent issue of *Time* the interesting article on Du Pont; one of the members of the executive committee pictured therein was our own Walter Beadle.

It was the hottest May 16 in the records

of the local weather bureau when Lobby addressed the annual meeting of the M.I.T. Club of New York. Lobby was enthusiastically introduced by George Dandrow'22 as well as Joe Littlefield, who was re-elected president of the Club. It was so hot, however, that Lobby says most other '17 men, save Arthur Knight and P.Y. Hu, had the good sense to stick to television or else be "out of town" that night.

I. B. Crosby returned late in May from an extended trip to Chile where he has been working on a power project for the World Bank and for Indessa, a Chilean Government corporation. While in Chile he covered two other power and reservoir assignments in his field. He was back only a few days when he left for the Philippines where he expects to survey a project for the national power corporation there. He looks forward with pleasure to a renewal of the pleasant relationships made with the Igorots on a previous professional visit to the islands. — RAYMOND STEVENS, *Secretary,* Arthur D. Little, Inc., 30 Memorial Drive, Cambridge 42, Mass. FREDERICK BERNARD, *Assistant Secretary,* 24 Federal Street, Boston 10, Mass.

• 1918 •

As a happy result of the class letter sent out in May by Alexander Magoun, a number of personal notes have come in from the brotherhood. In every case the communication concentrated on the meat and skipped the parsley. How typical of M.I.T.

Bill Foster, Economic Cooperation Administration Administrator in Washington says: "I note our 35th is rapidly approaching us and also that you will be soliciting again next fall for contributions to the Alumni Fund. I hope, in spite of the difficulties our Class has had, that we will do better than in some of the past drives." Don Goss, the irrepressible, who once named me an "unclaimed blessing" says: "First of all — I'm still practicing the jolly old profesh and making what is laughingly referred to as a living at it. Doing much better in the family field. Jinny, m' oldest, now was two girls. Dave, m' oldest boy is the proud parent of a handsome, seven-month-old boy and they say he takes after his grandpappy. Dick, m' next boy, is at Harvard and gets his Ph.D. in January in the field of entomology (a bug-boy, to you). He spent last summer on the Island of Yap collecting specimens for the National Research Foundation. He was married June 2 and already has a job at Brown teaching histology. Nancy, the youngest, 15, is at Brimmer and May. Yes, Sir, you see while I have been having fun at architecture, my kids have been busy making me a grandpappy and do I love it! Other activities include Boy Scout work and making water colors for my own amazement, with now and then a spot of golf to prove to myself that I can still move around a bit. Sure — bring on the reunion, such as it may be, and I'll try and make it this time. The grand old alma mater still owes us a graduation, don't forget."

Ed McNally, now president of the company whose four-line rhymes which suggest to the itinerant male autoist the certain joys of using a certain shaving soap, says: "I quit engineering and came with the Barbasol Company in 1927 and here I still am. I've enjoyed it immensely, for it didn't take me long to discover that the same sort of thinking which solves an engineering problem will solve a business problem. The facts and data may be different but the methods and results are the same. I married a charming Indianapolis girl 27 years ago and have made my home here; so by this time, I am probably a full fledged Hoosier. We have two boys. The older, Dan, is a Theta Delta Chi in Course II at the Institute. Incidentally, he is a musician of sorts, too, and plays the flute, and I think better than I did. Certainly better than I *can.* Does Magoun still play? Our younger son is finishing his junior year in Shortridge High School in Indianapolis and doing very well indeed. Engineering is not for him, however, he favors Princeton."

Jim Flint and Herbert Larner both expressed appreciation for the personal note they found as a postscript to the class letter and sent their best wishes to the class president in his new activities. Jack Poteat expressed an even greater confusion than most of us feel because of being a war class, and with good reason. Says he from Bridgeport where he serves the General Electric Company: "I have the letter about the 1953 reunion plans. When it came across my desk I tried to rationalize the reasons why my interest in class reunions has been so much less than my interest in fraternity reunions. I suppose it's because I started with the Class of 1917 and was taken sick in September of 1916 and so was out a year and finished with the Class of 1918. Even so, I left school in March to go into the service and so I wasn't much of a "1918-er" either. However, I think very likely the program which you are setting up would be an extraordinarily good idea and I might find it within my schedule to attend. I hope things in the future make it possible for the plans to materialize."

Henry Stephens wings a word from the other side of the continent: "Thirty-three years is a long time, but I remember some of you as clearly as if I had seen you only yesterday. Be sure to solicit me again next year for a contribution to the Alumni Fund as things are going very well with me and I wish to hold up my end. I now have 80 top quality design engineers on my staff here and could use 40 more good men. I especially need a few chemical engineering process calculators and designers, chemical process pressure vessel designers and chemical process piping designers and can pay the equivalent of approximately $10,000 per year taxable wages. Do you know any Course X men with more than five years practical recent experience in any one of the above classifications that would like to join up with me here? If so, have them write to me. Class of '18 preferred."

Finally, believe it or not, a classmate has gotten into the Wellesley *Townsman* for activity in the Norfolk Prison Colony. Hear ye! The bitterness, contrition and triumphal regeneration of a prisoner is the theme of the *Bastille Concerto* written by "Malcolm J.," young inmate of Charlestown prison, in collaboration with his teacher, Arthur J. Marsh of Weston Road. Mr. Marsh was the piano soloist when the Wellesley Community Orchestra presented the concerto at their spring concert on April 27. Mr. Marsh is with M.A. Dyer and Company, architects and engineers of Boston. Though architecture is his vocation, his avocation is music. A pianist, organist and choir director, he formerly was organist at the First Universalist Church in Cambridge. Mr. Marsh, who holds a Massachusetts civil service position as instructor of music, discovered the talented "Malcolm J." on his weekly visits to the Norfolk Prison Colony. Mr. Marsh taught the young man in his class in theory, harmony and counterpoint, and was impressed by his gift for composing. Of course, "Malcolm J." is denied the thrill of hearing his composition played by a real orchestra and soloist. But he has found release of a sort through the story his music told to the audience. — GRETCHEN A. PALMER, *Secretary,* The Thomas School, The Wilson Road, Rowayton, Conn.

• 1919 •

Bill Banks called your Secretary on his way through New York to a convention in Hot Springs, Ark. He attended the M.I.T. dinner here on May 3, and reports that Don Way, Edmund Flynn, Fred Given and Howard H. McClintic were also there.

An article appearing in the April 15 issue of the Boston Sunday *Globe* stated that top New England industrial and educational leaders were to address the local section of the American Institute of Chemical Engineers, holding a management conference at the Hotel Lenox. Heading the roster of speakers was classmate Earl P. Stevenson, President of Arthur D. Little, Inc., Cambridge, and we can be sure he did an excellent job. Dean of Engineering at M.I.T., Thomas K Sherwood,'24, delivered the keynote address, discussing the role of the educational institution in preparing engineers for management.

Congratulations are extended to our classmate Jim Strobridge on his election as president of the Strobridge Company early this year. For the present, he will make his headquarters in New York, but he visits his plant at Cincinnati every month. — Your Secretary had the pleasure of having dinner with Ernie Voss in Tulsa early in May and heard all about his family and his work with the Humble Oil Company — all of which is going well. He wants to be remembered to the boys. George R. Bond, Jr., of Houdry Process Corporation, also attended the A.P.I. meetings at Tulsa.

We extend our deepest sympathy to the family of the late Arthur E. Wales who passed away on April 16, 1951, at Memorial Hospital, Pawtucket. After graduating from M.I.T., he was engaged in engineering work in the Boston area. Then, he turned to salesmanship and for 15 years was in charge of the Providence office of IBM. For the past five years, he operated a novelty jewelry manufacturing and mail order business in Attleboro. He was a power boat enthusiast and an ardent seaman, familiar with the entire coastal area, and operated a large yacht

in the Buzzards Bay area. He introduced the idea of using Cape Cod seashells in packaging jewelry novelties and built a considerable business with Midwest customers. Word of his death was a shock to members of the local power squadron and also those of the Narragansett Bay Squadron which he commanded two years ago.

A recent note from Dean K. Webster, Jr., states that he is still connected with H. K. Webster Company, located at Richford, Vt. His dad, who is 81, is still active in the business, as well as his brother, Walter N., M.I.T. 1923. His son, Williams College 1951, is in the United States Marine Reserve Corps and his daughter is a student at Vassar, 1953. He mentioned that he was looking forward to the M.I.T. Club of the Merrimack Valley dinner meeting on May 15 at the Andover Country Club, at which Dr. Killian was to make an address. — EUGENE R. SMOLEY, *Secretary*, The Lummus Company, 385 Madison Avenue, New York 17, N.Y.

• 1920 •

Two more of our classmates have recently been honored by being nominated for the positions of alumni member on Corporation Visiting Committees: John W. Crowley for the Visiting Committee in the Division of Industrial Coöperation, and Ed Farrow for the Visiting Committee in the Department of Chemical Engineering.

William C. Forbes's present address is 42 Maple Street, New Bedford. Ed Van Deusen has left Los Angeles and is living at Spring Hill Farm, Julian, Calif. Ray Davis' present address is 9 Gorman Road, Framingham. Frank Owen is in Concord, Mass.; address, Independence Court.

Here's hoping all of you have a very good summer and lots of time off. — HAROLD BUGBEE, *Secretary*, 7 Dartmouth Street, Winchester, Mass.

• 1921 •

Wow! Last month we had a reunion! Our 30th, according to the accepted standards for measuring time, but more like a fifth in the boundless energy and enthusiasm of our quinquennial cutups, and a 50th in the warmth of friendship and depth of class spirit which has brought all the members of the Class even closer together as the years pass. On behalf of all, we salute Irv Jakobson, chairman, and his Reunion Committee — Mich Bawden, Mel Jenney, Chick Kurth, Jack Rule and Ted Steffian — for an outstanding achievement in planning and operation which was enjoyed to the fullest by everyone. If you haven't told these fellows what a swell time you had, drop us a note now and we'll be glad to forward it to Jake for the committee. Copy dates for this final issue of the current volume of The Review won't permit a description of the reunion and our part in Alumni Day, so the record will have to await the appearance of the next issue in November.

Additional reunion registrations not previously published in the series of probable attenders we have listed here since last December include Rod Bent'19, Larry Chellis, Zam Giddens, Don McGuire, Sandy McMorran, Lew Moss, Harry Myers, Bill Ready, Harry Rosenfield Walter Sherbrooke'20, Whit Spaulding, Harold Stose, Scotty Wells'20, and Jack Whipple. Zam Giddens tells us he recently ran into Ollie Bardes of Cincinnati at the Everglades Club in Palm Beach. Sandy McMorran is treasurer and general manager of the Iona Supply Company, retailers of household supplies in Salem, Mass. He is building a new home in Boxford, where he is president of the Men's Club and active in the Boy Scouts of America. Son Peter has been in the Navy for three years. Bill Ready has won a promotion to a full colonelcy, Corps of Engineers, and is now in New York City as deputy division engineer, North Atlantic Division. Harry Rosenfield is president and manager of the National Laundry Company, Dorchester, Mass., a director of Monks Laundry Company and the National Diaper Service. Active in Masonry, Temple and the United Jewish Appeal, he and Mrs. Rosenfield have four children and a grandson, the child of their eldest daughter. Son Jay attended Dartmouth and was in this year's senior class at M.I.T. We regret that his name was inadvertently omitted from last month's list of 17 sons and one nephew of 1921 currently attending the Institute. Daughter Joan is at Wellesley and Wilma at home. Walter Sherbrooke'20, President of Piping Specialties, Inc., New York City, and Scotty Wells'20 were welcome representatives of our hardy group that fought the battle of the Charles, lo, these many years ago! Harold Stose writes that he is technical representative of the consulting engineering laboratory of Sam Tour and Company, Inc., New York City. A member of the American Chemical Society and former chairman of its Toledo section, Harold is also active in the Society of Professional Engineers and the American Association for the Advancement of Science. He is married and has no children.

Joseph G. Kaufman is president of the J. G. Kaufman Company, Boston, whose unique new quarters on Province Street are devoted to the marketing of television, refrigerators and electrical appliances. The Kaufman's son, David, is a sophomore at Brandeis University. Henry R. Kurth, our Class Representative on the Alumni Council and a member of the 30th reunion committee, is assistant superintendent, Production Department of the Boston Edison Company, supervising the generation and transmission of power in the Edison system. Chick is a member of the American Institute of Electrical Engineers, the accident prevention committee of the Edison Electric Institute, a past chairman of the System Operators of New England and a former lecturer in the State Dvision of University Extension. He is the author of an article on power plant safety which appeared in a recent issue of *Electrical World*. Chick and Frieda have four children, three of them married, and two grandchildren. Malcolm was graduated from Technology in 1949, Anita attended Katharine Gibbs, Don will be graduated from Boston University this month and Barbara is in the class of 1951 at Boston University School of Nursing. G. Frank Lord is treasurer and director of Wheeler and Taylor, Inc., Great Barrington, Mass. He is also a director of the Pioneer Investment Corporation, Pioneer Credit Corporation, and South Egremont Water Company. Active in Masonic circles, he is a former president of Rotary and vice-president of the Massachusetts Association of Insurance Agents. He and Mrs. Lord have a married daughter, Melissa, who was graduated from Mt. Holyoke and did graduate work at Columbia, and a son, Frederick, who will be graduated from Dartmouth this month.

Charles MacKinnon is first vice-president and director of the Plymouth Cordage Company, Plymouth, Mass., and a director of Consumers Cordage Company Canada. Along with Jack Barriger and Phil Hatch, he is a member of the Newcomen Society. Charlie is a corporator of the Plymouth Five Cents Savings Bank and a member of Rotary. He and Mrs. MacKinnon have a daughter, Ellen Anne, who is 12. Leo Mann heads his own firm, Leo Mann and Company, Boston manufacturers of specialty chemicals and a novel line of flaconettes, atomizers and perfume bottles. He is a member of the American Chemical Society, a fellow of the American Institute of Chemists, and has membership in the American Association for the Advancement of Science and the Toilet Goods Association. Leo is married and has no children. Robert F. Miller, our class photohistorian, is a consulting industrial engineer on depot operations, Depot Branch of the Signal Corps, with headquarters in the Pentagon, Washington, D.C. For the most part, Bob has been everywhere else, occupied with the betterment of operating methods and equipment of depots throughout the country. Bob and Helen have five girls and a boy. Peggy and Bobby are in high school, Betty, Jo and Kathleen are in grade school and Jean in kindergarten.

Philip A. Nelles is an industrial gas engineer, Malden and Melrose Gas Light Company, Malden, Mass. A corporator of the Stoneham Five Cents Savings Bank, he is also a member of the American Gas Association and a former chairman of the industrial division of the New England Gas Association. He reports seeing Charlie O'Donnell and Steve Seampos recently. Phil and Mrs. Nelles have a daughter, Patricia. Edward W. Noyes, Sr., is a sales engineer in Philadelphia for the Chicago Pneumatic Tool Company. He was a lieutenant commander in the Navy for two years during World War II. The Noyes' have four children, a grandson and granddaughter. Edward, Jr., attended Penn State, Isabell and Thomas are married, and Willard is in high school. Ernest Pauli is a manufacturers' representative on power transmission equipment with his son, Ernest, a Stevens graduate. His home is in New York and his office is in Newark, N.J. Victor S. Phaneuf of Winchester, Mass., is an architectural designer and construction engineer, a member of the American Society of Civil Engineers and a registered professional engineer in all of the New England states. A lieutenant colonel in the last war, he was an area and a post engineer in charge of all Army installations within a thousand-square-mile area. He is still active in

the reserve, in which he has been a member since 1925. Vic reports recent contacts with Bob Haskel, Roy Hersum and Dinnie Whelan. He and Mrs. Phaneuf have a son, Richard, who is a corporal with the 86th Army band.

George W. Pollock, owner of the Geo. W. Pollock Company, composition flooring contractors of Milwaukee, Wis., has been a faithful attender at reunions. He writes that he would like to have calls from members of the Class who visit Milwaukee. The Pollock's eldest daughter attended Wellesley and is married, George, Jr., attended Cornell and Lindsay is in prep school. Albert E. Povah is the owner of the J. J. Hurley Company, Boston engineers and contractors for heating, piping, air-conditioning and power plants, a firm formerly headed by our late classmate, Lou Hurley. Al is a member of the Massachusetts Society of Professional Engineers and a member of the board of registration of Professional Engineers and Land Surveyors for the state. He and Mrs. Povah have a daughter, Jane, in high school. Donald W. Randolph is vice-president and director of the Apex Electric Manufacturing Company, Cleveland. A member of the Organized Reserve, he was a commander in the Navy for three years in the last war and received the Commendation Ribbon. He is active in the Community Fund of Cleveland and his memberships include the Society of Automotive Engineers, the Institute of Aeronautical Sciences, and the American Society for Testing Materials. The Randolphs have a daughter, Helen.

Fairfield E. Raymond is the business manager of Browne and Nichols School, Cambridge, and vice-president of Purves Corporation. He belongs to the American Society of Mechanical Engineers, the American Management Association and takes an interest in Y.M.C.A., Red Cross, Community Fund and other local affairs when he isn't to be found enjoying tennis, skiing or mountain climbing. Daughter Martha is at Vassar and Fanny at Shady Hill School. Herbert W. Reinhard is the owner of the Protective Coating Company manufacturers of vinyl coatings for prevention of corrosion of metals, Newtonville, Mass. Herb is a sailing enthusiast and vice-commander of the Hull Yacht Club. He is president of the Hull Gala Day Association and a member of the National Association of Corrosion Engineers. The Reinhards have two sons in grade school. William Rose, Jr., is vice-president of Charles F. Abbott Company, Inc., electrical manufacturers of East Orange, N.J. Bill and Mrs. Rose have four children, a grandson and granddaughter, the children of their eldest daughter, Andrea. Henry is a sergeant, Marine Corps, Lydia is at St. Elizabeth Nursing School and Helen at Northfield School.

Saul M. Silverstein is president and general manager, Rogers Corporation, Manchester, Conn., fabricators of fiberloys. If you don't find the word in the unabridged, ask Saul for a clever new publication, *Here's Rogers*, which tells all in a light vein. He is a founder and vice-president, First National Bank of Manchester, a member of the Technical Association of the Pulp and Paper Industry, American Institute of Chemical Engineers, American Chemical Society, Society of the Plastics Industry, Society of Plastics Engineers, and Society for the Advancement of Management. He is the author of recent articles on impact materials and the Rogers use of the Rucker plan. Son Lee is a junior at Boston University, Phyllis a freshman at Wheaton and Barbara is in high school. Horace B. Tuttle is an estimator for the Insulation Company, West Hartford, Conn. He is secretary of the Connecticut Insulators Association, a member of the Hartford Engineers Club and the American Society of Refrigerating Engineers. The Tuttles' elder son and daughter are both married and each has a daughter. Nancy and Bill are at home. William Wald is in the architecture and engineering office of Sumner Schein, in charge of engineering, construction and specifications. Daughter Sylvia is at Barnard.

Charles A. Williams, Vice-president, United Illuminating Company, New Haven, Conn., is also a trustee of the National Savings Bank of New Haven and a director of the Manufacturers Association of Connecticut. A member of the American Institute of Electrical Engineers and the New Haven City Plan Commission, he is also a director of the Grace-New Haven Community Hospital. His article on "New England's 'Decline' has an Upward 'Trend'" is still going strong. Lark Randall, Dug Jackson, Woodie Wood and others have praised to the sky the Williams' manse, "Wickiup," which Charlie disposes of lightly with the comment that they enjoy the simple life in the country. Charlie, Jr., attended Duke, Margaret is married and has a three-year-old son. Everett J. Wilson is superintendent of production and distribution, Malden and Melrose Gas Light Company, a member of the American Gas Association and director of the operating division of the New England Gas Association. The Wilsons' daughter, Betty, will be graduated from Vassar this month, Jim is a sophomore on the varsity football squad at Bowdoin and Frank is in high school. Edward P. Wylde is the owner of his own machinery business, the Harbor Machine Company, Adams, Mass. Son Arthur is attending North Adams State Teachers College and Cornelia, Douglas and Russell are in high school.

Arthur E. Raymond, Vice-president of Douglas Aircraft Company of Santa Monica, Calif., has been nominated as an alumni member of the Corporation's Visiting Committee for the Institute's Department of Aeronautical Engineering, according to a note from Don Severance'38, Secretary-Treasurer of the Alumni Association of M.I.T. Elmer W. Davis is now living at 241 Alexander Street, Rochester, N.Y. John J. Healy, Jr., has a new home at 1 Crescent Avenue, Second Cliff, Scituate, Mass., and Roy A. Wehe, Assistant Director of the California Public Utility Commission, is located in Room 411, 660 Market Street, San Francisco, Calif. New addresses have also been received for Phillip F. Breen, Dana C. Huntington, Frank H. Kirby and Oliver Williams. Technology recently opened its new Industrial Hygiene Laboratory which is cooperating with the Institute's safety committee, headed by Professor Edward R. Schwarz. Ed, who is in charge of the division of Textile Technology, also served on this year's commencement committee in the awarding of degrees to a thousand seniors and graduate students.

To the 50 or more members of the Class who took active parts in the M.I.T. Development Program which was so successfully carried out, go our sincere thanks in appreciation of their loyalty and devotion to Technology. Sumner Hayward reports that the following were among those present at the dinner to Alfred P. Sloan, Jr.,'95 in New York: Ollie Bardes, George Chutter, Ormond Clark, Stew Coleman, Ed Delany, Irv Jakobson, Dan Harvey, Munnie Hawes, Sumner Hayward, Charlie Herty, Jr., Bill Kennedy, Joe Morrell, Warrie Norton, Larry Richardson, Ray St. Laurent, Bill Sherry, Saul Silverstein, Roy Snyder, Whit Spaulding, Carl Stenholm, Harold Stose, Bill Stratford, Joe Wenick, and Dick Windisch. Sumner also reports seeing Harold Stose and Joe Wenick at the last meeting of the M.I.T. Club of Northern New Jersey. He says that Squeeze Huggins' daughter was married in April in New York. Sumner and Elizabeth's son is with an antiaircraft battalion in Germany and Priscilla is at Swarthmore.

John W. Barriger, President of the Chicago, Indianapolis and Louisville Railway Company, addressed the freight station section of the Association of American Railroads in May on "The Railway Station – Gateway to Opportunity." John is featured in "Today's Monon," appearing in *Trains* magazine, as the brilliant head of the team which, in five years of his leadership, has put the road back into most successful operation. John's annual report confirms this encouraging development. Philip H. Hatch, formerly general mechanical superintendent of the New Haven Railroad, with which he had been associated for the last 28 years, has been appointed to a key position at the General Electric plant in Erie, Pa., where he will direct the planning and development of new types of locomotives. Phil is an authority on Diesel locomotives, with many years of experience in their application to freight and passenger service. He is the author of a number of articles on motive power.

It is with deepest sorrow that we report on the passing of Harry Victor, announced last month, and express sincere sympathy to his family. The Standards Engineer in the Special Projects Department of the M. W. Kellogg Company, Jersey City, N.J., he died at his home in New York on February 28, 1951. Born in Odessa, Russia, on August 13, 1893, he attended Dallas (Texas) High School and received his B.A. degree at Rice Institute before entering M.I.T., where he obtained the S.B. degree in Course IX-B with our Class. He had been an instructor at the University of Arkansas, a designer and field engineer with various structural steel fabricators and in the construction of an oil refinery before becoming assistant engineer on maintenance of way structures for the Fort Worth and Denver Railroad. He designed dams with the Electric Bond and Share Company and later completed the Oakdate, Indiana, hydro development in the engineering office of Roger M. Freeman. He was connected with the design

of water works and sewage plants with Thomas H. Wiggin and the Public Works Engineering Corporation before becoming associated with the Kellogg Company in mechanical development and pressure vessel code work. Later, he was the coordinator of purchasing and engineering departments and the supervisor of inspection. In 1945, he assumed charge of developing and preparing standard specifications in the mechanical engineering department and became standards engineer in 1949. He is survived by his wife and four sisters. We are indebted to Hazel I. Brown of the Kellogg special projects department for obtaining the data for these notes.

Don't fail to respond to the Alumni Fund appeal when it resumes — in October — on a new schedule. By so doing you will continue to receive The Review and be able to join with us on these pages from November through July. A very pleasant and enjoyable summer to you all. — CAROLE A. CLARKE, *Secretary*, International Standard Trading Corporation, 67 Broad Street, New York 4, N.Y.

• 1922 •

Allen S. King has been elected executive vice-president of the Northern States Power Company and his offices are located at 15 South Fifth Street, Minneapolis, Minn. Allen's move from Fargo, N.D., to Minneapolis has been in the nature of going home as he was born and raised in Minneapolis and had his home there while he was attending Technology. — Francis M. Kurtz was nominated by the Alumni Association to the position of alumni member on the M.I.T. Corporation Visiting Committee for the Department of Food Technology. The purpose of the various committees for the departments is to give each department the benefit of advice and opinions of an interested group other than those actually connected with the M.I.T. Faculty or Administration. — Your Secretary received a card from Oscar Horovitz, mailed from Jerusalem last March. He said that he met several M.I.T. men, one being our classmate Elhanan Boruchov to whom reference was made in the class notes a few months ago. Oscar may be home by the time these notes are in print.

All of the Class by now have received President Clate Grover's letter of April 30 commenting on the Institute's Development Program, the class notes department which functions through your secretaries, and preliminary news of the 30th reunion in June, 1952, at the Sheldon House, Pine Orchard, Conn. Any contributions by the members of the Class on their own or other classmates' activities will be appreciated.

A. Hutton Vignoles carries on an interesting and little-known business at his home and workshop 1235 Boylston Street, Newton Upper Falls, where he is engaged in the making of all kinds of architectural models, working to a scale of one-sixteenth of an inch to a foot. An account of his activities appeared in the April 11, 1951, issue of the *News-Tribune* of Waltham, Mass. It hardly seems necessary to mention that the leading article in *Time* of April 16 was on Crawford H. Greenewalt. Probably all have seen and read the story with interest.

At the Victory Dinner in honor of Alfred P. Sloan, Jr.,'95, and members of the Development Fund Committee, given by the Corporation of M.I.T. on May 3, 1951, at the Waldorf-Astoria, New York, were the following members of our Class: Irving Ball, Donald F. Carpenter, Lee W. Carroll, C. Yardley Chittick, Paul J. Choquette, Kendrick P. Coachman, Robert F. Cummings, C. King Crofton, C. George Dandrow, Laurence B. Davis, Frederick N. Dillon, Jr., William J. Edmonds, Lloyd A. Elmer, Warren T. Ferguson, Whitworth Ferguson, Chester W. Greening, Clayton D. Grover, H. Langdon Haltermann, Broderick Haskell, George S. Holderness, Harold L. Humes, Abbott L. Johnson, Percy C. Keith, Jr., Francis M. Kurtz, Edward A. Larner, Will I. Levy, Duncan R. Linsley, Milton M. Manshel, Theodore T. Miller, William H. Mueser, August P. Munning, H. Judd Payne, Paul M. Phillips, Sam H. Reynolds, Frank O. Rickers, Paul Ryan, Hugh M. Shirey, Charles W. Stose, Wilfrid M. Thomson, Everett W. Vilett, F. Willett Walton, Jr., N. Conant Webb, Thomas H. West, Vernon E. Whitman and Othneil G. Williams.

We are sorry to have to report the sudden death of Edward F. Bowditch on April 28 at his home at 6 Kenway Street, Cambridge, Mass. He had lived in Cambridge for 20 years where he was a real estate broker. During the last war he was associated with the radiation laboratory at Harvard, and at the time of his death was a trustee of the Cambridge Savings Bank. We extend our sympathy to his family. — We also have a belated notice of the death of Gabriel Smith of Oslo, Norway, on February 12, 1948. No other details are available as yet.

NEW ADDRESSES: Keith W. Robbins, Hotel Lycoming, Williamsport, Pa.; Lachlan MacKenzie, Hotel Multnomah, Portland, Ore.; Melvin J. First, 5627 Primrose Avenue, Indianapolis, Ind.; William E. Zimmerman, Box 200, R.F.D. 1, Goble, Ore.; Florence W. Stiles, 815 Augusta Road, Westover Hills, Wilmington, Del.; Charles H. Edwards, 1465 Riverside Drive, Cleveland 7, Ohio. — C. YARDLEY CHITTICK, *Secretary*, 77 Franklin Street, Boston 10, Mass. WHITWORTH FERGUSON, *Assistant Secretary*, 333 Ellicott Street, Buffalo 3, N.Y.

• 1923 •

It is too early to report on the annual meeting of the Class on Alumni Day because these notes have to be written in May. President Bob Shaw on May 14 addressed a general letter to the Class so that everybody had notice of the class meeting on June 11.

On May 3 the Victory Dinner of the Development Fund Committee was held at the Waldorf-Astoria Hotel in New York to pay tribute to Alfred P. Sloan, Jr.,'95, and there was a large turnout of 1923 men at this meeting. I did not see every member of the Class who was on the acceptance list but it included the following: Frank D. Ahern, Herbert A. Barnby, Edwin M. Barnes, Horatio Bond, Thomas Boyd, George W. Bricker, Jr., John E. Burchard, Clarence V. Chamberlin, Walter Dietz, Theodore M. Edison, Hugh S. Ferguson, Joseph Fleischer, Harland C. Forbes, Per K. Frolich, Earle A. Griswold, Robert L. Hershey, Robert J. Hull, Harry Kalker, George I. King, Jr., Joel Lund, Edward McSweeney, Stephen B. Metcalfe, John J. Murphy, Charles R. Myers, 2d, Harry J. Paletz, Alfred E. Perlman, Bernard E. Proctor, Albert S. Redway, Louis Skidmore, Roscoe H. Smith, Lyman L. Tremaine and Rodolphus K. Turner.

John W. W. Sullivan has written a book entitled, *The Story of Metals*. It was announced in the *Science News Letter* for March 24 as a book answering in readable style many questions of the layman and his young son. It contains 290 pages, is illustrated, and was published by the American Society for Metals and Iowa State College Press. — The Boston Sunday *Post* for April 22 devoted two columns to the Cinder Products Corporation of Providence, R.I. Royal Sterling is one of the officials of this company; one of its products being a building block in which volcanic pumice stone is used, making a lightweight unit that has many advantages in building construction.

Franklin J. Griffin, of the Boston investment advisory firm of Studley, Shupert and Company, was a speaker before the Newburyport Rotary Club in April. He is vice-president in charge of the research department and statistical services of the company. — Dean John E. Burchard spoke on April 20 at the University of Minnesota Centennial Celebration and also before the American Institute of Architects in Chicago on May 8. Also on May 8 your Secretary addressed the annual meeting of the National Fire Protection Association in Detroit on "Wartime Fire Defense for Industrial Property." — Sherwood F. Brown has been appointed to the faculty of the summer term at Colby College, Waterville, Maine, during which he will teach a course in elementary physics. He reports that he is currently engaged in research on the physical and chemical composition of Ming red glazes.

Four members of the Class have been nominated by the Alumni Association for the position of alumni member on M.I.T. Corporation Visiting Committees. These committees are composed of seven members: three members of the M.I.T. Corporation, two non-M.I.T. members chosen by the president and two M.I.T. alumni members recommended by the Alumni Association with the endorsement of the head of the department. The purpose of the committee is to give the department the benefit of advice and opinions of an interested group other than those actually connected with the M.I.T. Faculty or Administration. The 1923 appointments include: Per K. Frolich for the Department of Biology, William Webster for the Department of Physics, Cecil H. Green for the Department of Geology, and Miles N. Clair for the Department of Building Engineering and Construction. — HORATIO BOND, *Secretary*, National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass. HOWARD F. RUSSELL, *Assistant Secretary*, Improved Risk

Mutuals, South Broadway, White Plains, N.Y.

• 1924 •

No sooner are these notes written than something happens to make them obsolete. Last month we wrote about Monsanto's Executive Vice-president, and hardly had that copy gone to press than Monsanto boosted him. So now it's President Charles Allen Thomas of the Monsanto Chemical Company, and for that kind of news we don't object in the least to a bit of temporary obsolence. Looks as though '24 is producing almost as many presidents this spring as it did babies last fall.

On May 3 the big Victory Dinner, celebrating the successful completion of the Development Campaign, was held in New York. It brought out the greatest collection of '24 men since reunion, 26 in all, and not just New Yorkers, either. Dent Massey came down from Toronto, Mike Amezaga hopped up from Havana, and Joe Mares made it all the way from Texas City, Texas. Pret Littlefield got all their autographs on the back of one of the oversize programs. Included among the signatures, a cryptic scribble which looks like "Cb." Could it be that Good Old Joe was also present?

We jumped the gun on Gordon Crabb, announcing he was back in this country. A note informs us that he has returned to the Canal Zone – it was just a visit. Rear Admiral Frank G. Fahrion has left Washington for more sea duty, this time as commander, Destroyer Force, Atlantic Fleet. Another move, that of Fu Cheng Chan who has returned to northern climes after several years spent in Miami. Back in Cambridge, he's with Hung's Food Products, Inc., makers of chop suey and other delectable oriental dishes, "frozen and bulk."

Bill MacCallum wants more movies, more taken at our 25th, that is. He's holding up the auditing and duplicating until he gets them. So far, Nate Schooler and Wink Quarles are in, but there were more than that in the movie business. How about sending him what you have? They'll come back as soon as he has duplicates made. It's William H. MacCallum, Modern Talking Picture Service, 612 South Flower Street, Los Angeles 17. Bill enclosed a letterhead of the M.I.T. Club of Southern California, and if '24 isn't running it, at least we're coming close, even with Phil Bates, last year's president, out of office. He's still in there as a member of the board of governors. The First Vice-president is Rock Hereford; Treasurer, Bill MacCallum; Assistant Secretary, Phil Herrick; and to make it complete, the club's representative on the Alumni Council in Cambridge is your Secretary.

The American Institute of Chemical Engineers met in Boston last April. Delivering the keynote address was Thomas K. Sherwood, Dean of Engineering at M.I.T., who discussed "the role of the educational institution in preparing engineers for management." On April 26 in South Weymouth, Mass., Mrs. Dorothy Fletcher Chapman became Mrs. Hugh Moore Phinney. Hugh is with Simplex Wire and Cable in Cambridge. A release from C. F. Braun and Company of Alhambra, Calif., announces that Philip C. McGrath has been named head of its project-engineering department.

One item we missed in last month's accounting of Hank Simonds' perambulations. Last summer he exchanged his four stripes for the two-and-a-half of a Navy lieutenant commander for a couple of weeks, helped sweep the mothballs out of some west coast ships.

And so we come to the end of another publication year. There's a whole summer ahead in which a lot of you are going to be doing interesting and unique things. How about putting your Secretary on the list of those who will be the happy recipients of picture post cards? It's all grist for the mill. Good luck to you all. – HENRY B. KANE, *General Secretary*, Room 1-272, M.I.T., Cambridge 39, Mass.

• 1925 •

The response to Ave Stanton's letter has been most encouraging and as of the middle of May, we have heard from 96 of the Class. There are still many more of you whom we should hear from, and I hope by the time you read these notes you will have responded. Just as gratifying as the financial response have been the letters received from members of the Class. I wish it were possible to acknowledge everybody's response to Ave's letter but my thanks in this column will have to serve that purpose.

Joe Russell writes to us from Houston, Texas, stating that he has been recently elected president of the M.I.T. Club of South Texas while Albert Golemon is the vice-president. The following is quoted from Joe's letter: "Al is one of the very successful architects in Houston, being a member of the firm of Golemon and Rolfe (Walter T. Rolfe is also an active M.I.T. alumnus of earlier vintage.) Al and I are both members at Pine Forest Country Club where he is currently chairman of Invitation Golf Tournament Committee. I do little golfing and still try a little tennis. Did manage to win our club championship just to kid myself that I am still young. As I haven't struck oil yet, I work at running Texas Solvents and Chemicals Company, essentially engaged in distribution but doing some light manufacturing. Familywise my wife, Ruth, has the job of managing a new house we planned ourselves, engineered to our bad habits and designed to contain two girls June, aged six and Carol, aged four. Wish I could set out to collect steins like Tom Price, but may have to be content with my one stein."

Charlie Cooper, Director of the Engineering Research Laboratory of Du Pont in Wilmington, Del., has written the following: "After graduation I stayed at Technology with the Chemical Engineering Department on various research projects for a couple of years and then joined the School of Chemical Engineering Practice. Most of the eight years with that organization were spent at the Bangor Station. Here instruction was enlivened by an occasional fishing trip or a visit to Mt. Katahdin. In 1936 the Du Pont Company beckoned and I found myself in Charleston, W. Va., working in process development work at Belle in the high-pressure and ammonia plant. In 1940, I was transferred to Wilmington to take charge of chemical engineering research work in the engineering department. The laboratory is located at the experimental station just outside of Wilmington. From 1942 to 1945 I was on loan to the University of Chicago in connection with engineering development for the very "hush-hush" project which eventually produced Hanford. Since 1945, I have been back in Wilmington, in engineering research work. It would, of course, be the greatest of pleasure to see any of the Class who pass through this part of the country. Occasionally, I run into Art Larchar who also works at the experimental station but in chemical research. Charlie Petze is hereabouts and the only other person of the Class that I remember here. Also E. W. Brugmann of the Class of '24, with his master's in '25, is here with me."

Hollis Ware has written to me regarding his activities of the past five months. The latter part of 1949, he found himself in a rather badly run-down condition and since the work at the Operations Research Office was becoming extremely pressing, he decided to resign as of June 15, 1950. I am quoting the remainder of his letter so that you may have the information just as Hollis presented it: "After several weeks, during which I got better rapidly, I decided to try my chances in New York. A friend in the labor relations consultant business offered me a couple of months' work and I decided to take it; as it would give me a chance to see if I would 'stand up' under another job, and at the same time let me look around for a permanent position. Things worked out very well. Toward the end of my stay with the consultant firm, I located a position in Pleasantville about 35 miles from New York City, and decided to take it.

"The position is that of personnel director for the General Precision Laboratory, Inc., a division of the General Precision Equipment Corporation. This firm does research, and some manufacturing industrial process control instruments, and aircraft and marine navigational instruments. Some of this research is for its own products, some for other divisions of the parent company, and some under government contracts. Several members of the staff were with the Radiation Lab during the war. The GPL has been located since 1946 at the former H. E. Manville estate in Pleasantville, at 63 Bedford Road. My temporary address is next door, so that I am able to get to work in about two minutes.

"A few days before leaving New York City, I got in touch with Ted Coyle, XIV, and had lunch with him at the Chemists' Club, of which he is a member. Much of our conversation concerned the whereabouts and activities of former XIV men. I was able to tell him that Steve Zavoico was with Eagle Lock Company in Chicago (he is a vice-president), and that Rufus Palmer had been at the Mellon Institute in Pittsburgh, although I wasn't sure that he was still there. Ted is vice-president of United Chromium, Inc., a division of Metal and Thermite Corporation, and shuttles between his headquarters in Detroit and the company's general offices

in New York. He and his wife have three children, two in college, and one still in high school.

"My son Colin (M.I.T., VI '53) and his wife became the parents of a baby girl on March 24. Mrs. Ware and I, who felt quite youthful at the reunion at the Griswold, have thus become grandparents. The blow was softened somewhat by their naming the baby Charlotte after Mrs. Ware, and we are now getting used to the idea, in fact we are quite proud of our new estate. This leads up to the fact that we shall have been married 25 years on July 25. This will have been quite a year for us; new position, grandchild, and silver wedding, all within the space of a few months! — You may be interested to know that E. Bradford Nichols, who is general agent for the Great Northwest Life Insurance Company in Spokane, Wash., was elected in 1950 to membership in the mid-century edition of the international *Who's Who in Music.*"

Through the kindness of Don Severance'38, I learned that Arthur F. Merewether and Donald A. Henderson have been nominated for the positions of alumni member on the M.I.T. Corporation Visiting Committees for the Department of Meteorology and the Department of English and History, respectively.

Possibly some of you read in the New York *Herald Tribune* an article under the heading "Business and Finance Leaders" which I take the liberty of quoting: "Maxey Jarman succeeded his father as president of General Shoe Corp. in 1932, became chairman in 1948 and continues as chief executive. He started in the business in 1924 when it was organized just after leaving . . . Technology. The Company started off with small capital and 120 employees, has had a rapid growth, particularly in the last twenty years and its volume last year exceeded $100,000,000. Growing up with the business, Mr. Jarman has had experience in many different departments. Today, under his direction, production is currently running around 75,000 pair a day of shoes for men and women and children in the medium price grade. These shoes are distributed under both nationally advertised and private brands through 20,000 retailers. In addition, the company owns something over 200 of its own stores in the larger cities. He is active in church work, teaching a Sunday School class of men in the Baptist Church. He is also on several Baptist boards. . . . In business Mr. Jarman is known as an independent and liberal thinker. He has promoted an increase every year in minimum wages, has advocated steadily increasing earnings to his employees by giving them the benefits of increased productivity. As a result, under Mr. Jarman's direction, the company has an exceptionally good employee-relations record. Mr. Jarman believes in using his own products. According to him, the well-dressed man should have at least thirty-two different kinds of shoes in his wardrobe, and well-dressed women fifty or more. Mr. Jarman himself averages a new pair about once a week so he can try out the various types of products his company makes. One of the achievements of General Shoe is that it is a company which has never shown a loss in its twenty-six years of operation, a record of which Mr. Jarman is rightfully proud." — F. LEROY FOSTER, *General Secretary*, Room 5-105, M.I.T., Cambridge 39, Mass.

• 1926 •

This is what I call the "mothball" issue of the class notes because you won't hear from us again until the fall. This year we would gladly have put the class notes in cold storage sooner because we are still writing the notes *before* "The Reunion" that won't be published until afterward. Nonetheless, our various sources of information have been quite fruitful this month so we can give you a little news for a change instead of the usual line of chatter.

We are still receiving letters from those members of the Class who were not going to be able to attend the reunion and the reasons they give are certainly good ones. Ed Oeffinger has written that he is recovering from an illness and, therefore, regretted that he would not be with us but sends regards to all. Dick Parsons dropped us a note from Quincy, Mass., stating that he had been looking forward to attending the 25th reunion but two of his daughters were graduating that week end from different schools and he planned to attend both ceremonies. Similarly, Nelson Wilmot has a daughter who was graduating and he also sends his regrets. Austin Ford, who always shows up at reunions, had not sent in a reply so we dropped him a note to see what was the matter and learned from his wife that he is over in Bangkok, Thailand, for several weeks on a business trip. We had not heard from Sparky Turner and asked Dave Shepard to do some checking and the report came back that Sparky had gone to Colombia on an engineering job and would not be back until after the reunion. We also received a note from Elizabeth Kulp who advised that her husband, Maurice P. Kulp, had died last November. This was reported in the May issue of The Review but not in the class notes. We have written to Mrs. Kulp extending the sympathy of the Class.

Did many of you see Mooney Owen on television? As we reported some time ago, Mooney is head of the Board of Trade in Washington, D.C., and as such, it fell upon him to make the presentation to General MacArthur at the Washington Monument on the afternoon of the famous speech. Your Secretary regrets that he only watched the "Old Soldiers Never Die" speech but had he known that Mooney was to be on in the afternoon, would never have missed it. We hear that he did an excellent job and extend our congratulations.

We have newspaper clippings from Denver, Colo., and from Boston telling about the promotion of William P. Gee to assistant to the president of the Texas Company, and extend our congratulations to Bill. This is particularly interesting because it puts two '26 men in parallel jobs with major oil companies. Our Class President, Dave Shepard, as you know, operates in a similar capacity with Standard of New Jersey. I wonder what's the matter with some of these other oil companies that they don't get on the bandwagon — haven't they heard of the Class of '26? We have a note from H. E. Beebe '10, Secretary of the M.I.T. Club of Southern California, about Helmut Geyer who early this year was made director of the West Coast Research and Development Laboratory, Robertshaw-Fulton Controls Company in Pasadena. Congratulations to Helmut in his new research laboratory building.

Harry Howard hit the headlines again recently by being elected president of the Book Manufacturer's Institute. The clipping about Harry is quite lengthy and we will not quote it in detail; but we can state from experience that Harry is one of those individuals to whom you can give an assignment and forget it. Men like that are always in great demand and that is why Harry has been so active in his home town of Norwood, Mass., where he is works manager of the Plimpton Press. You probably remember that Harry served as one of the editors of *The Tech* when he was at the Institute. Congratulations, Harry, for this new addition to your long list of activities. One of our classmates, Dr. Edgar M. Holmes has been nominated by the Alumni Association for the position of alumni member on the M.I.T. Corporation Visiting Committee for the Medical Department. The purpose of this committee is to give the Department the benefit of advice and opinions of an interested group other than those actually connected with the M.I.T. Faculty or Administration. Edgar is a practicing physician in Boston.

That winds up the news items we have gathered from various sources and also brings this season's notes to a close. When we start in the fall we will have the reports on our 25th reunion. In the meantime, we hope that you all have good fishing, good golfing and, oh, yes, good painting. This brings to mind that about a year ago Sam Homsey paid us a visit at Pigeon Cove when he was spending a week at Cape Ann sketching. In early May, Sam had an exhibit of 29 water colors at the Doll and Richards galleries in Boston. Many of his water colors apparently were produced during his Rockport visit and one of them, entitled "Pigeon Cove Breakwater" includes the area and cliff where our house is located, but Sam left out our house! We know that there are many liberties allowed an artist but I didn't think that omitting a friend's house from a painting was one of them. But as I started to say before — have a pleasant summer each and every one of you and we will be talking with you again in the fall. — GEORGE WARREN SMITH, *General Secretary*, E. I. du Pont de Nemours and Company, Inc., Room 1420, 140 Federal Street, Boston, Mass.

• 1927 •

J. Robert Bonnar recently became a national vice-president of the American Association of Textile Chemists and Colorists in the only change in officers for this year. Mr. Bonnar headed the research work of the society for many years until his recent resignation. He is with General Dyestuff Corporation.

A recent news clipping tells us that Rear Admiral Augustus J. Wellings of

the United States Navy, a native of Chelsea, is now commander of Amphibious Training for the United States Atlantic Fleet with headquarters at Little Creek, Norfolk, Va. He is a veteran of two world wars and has contributed essentially to the atomic bomb tests held in 1948. Among his decorations are the Legion of Merit, the Gold Star and the Commendation Ribbon. Prior to his present assignment, he was assigned as navy member on the munitions board petroleum committee. His home address is 21 St. Andrews Street, East Boston.

Professor H. G. Houghton, in charge of the Department of Meteorology at M.I.T., recently appeared before the Joint United States Senate Hearings on Weather Control. His paper entitled, "An Appraisal of Cloud Seeding as a Means of Increasing Precipitation" was accepted for publication in a forthcoming issue of the *Bulletin of the American Meteorological Society*, and reprints made available to the Committee. — The returns on the class reunion-book questionnaires have been magnificent. Those who are still holding them in the "stagnant" pile, get them out and send them in. — JOSEPH S. HARRIS, *General Secretary*, Shell Oil Company, Inc., 50 West 50th Street, New York 20, N.Y.

• 1928 •

Cho-Lan Yin, I.L. 2919 Kings Road, Hong Kong, sent the following letter to Professor Holt: "Maybe you still recall my name as one of your students back in 1926-1928 when I graduated from Course II at M.I.T. I had a special liking for heat power engineering and took all the courses offered including Professor C. W. Berry's refrigeration and entropy diagrams. Upon graduation, I joined the then Brunswick-Kroeschell Manufacturing Company (now incorporated into Carrier International) at New Brunswick, N.J., as junior engineer. In 1930, I returned to China as their representative. During these years, I have stuck to refrigeration and air-conditioning first as professor of the National Tsing Hua University, Peiping, and then with this corporation for six years up to date. I am assistant manager of the corporation and engineer in charge of installation and service."

With great regret we announce the untimely deaths of two of our classmates: Henry Gitterman, age 45, civic leader in Yorktown Heights, N.Y., and former president of the Air Treatment Corporation of New York City; and John Glynn Deegan, age 47, founder of three marine manufacturing companies, of which he was president. His death occurred in Bronxville from a heart attack. He was a member of the Society of Naval Architects and Marine Engineers, the Downtown Athletic Club and the Westchester Country Club.

Charlie Richheimer is a junior partner of the firm of Reynolds, Smith and Hills, consulting engineers and architects, Jacksonville, Fla. This firm completes projects totaling approximately $40,000,000 a year. Carl Bernhardt is regional sanitary engineer for the New York State Department of Health at Buffalo. He has developed or participated in plans for long-range water supply projects or anti-pollution plans for the Niagara region. Ed Chute is now a vice-president of the National Shawmut Bank of Boston. Al Richmond is director of public relations at Massachusetts Memorial's six hospitals.

Chet Day was a recent Thespian in *The Little Foxes*. He had one of the leading male roles in the Harvard, Mass., Millstone Players' presentation of this famous play by Lillian Hellman. John Carvalho has recovered from two operations at the Massachusetts Eye and Ear Hospital and is back in Fall River. Dud Smith's older boy, Dick, has entered Princeton as one of the eight Hawaiian candidates selected for the Princeton Naval Reserve Officers' Training Corps. Before that, Dick was breaking swimming records at Punahou High School in Honolulu.

Joseph Leo Collins and Gertrude Claire Cadogan have been married. Congratulations, Joe! Captain E. E. Sprung is the new commander in charge of reactivating the Long Beach Naval Shipyard. George Freyermuth is manager of the public relations department of the Standard Oil Company of New Jersey. Ed Gray has been appointed sales manager of General Electric's new laminated and insulating products division. Paul Johnson is vice-president of W. A. Ramsay, Ltd., industrial sales and engineering firm in Honolulu.

Jim Cullen has been serving as chairman of the Middlesex, Mass., County Commissioners, marking the first time in the county's history that a democrat has filled the post. Jim also was one of the democratic candidates in the fight to unseat the republican incumbent, Edith Nourse Rogers. The Lowell, Mass., *Telegram* reported that Jim "is a well-known figure in Lowell where he made many friends during his bid for the democratic nomination for Congress." Carl Loeb, Vice-president of the Climax Molybdenum Company, has been selected to head the New York Committee for the Armed Forces. This is a co-ordinating committee to unify the huge effort being made by more than 100 welfare, religious and civic groups in the city. — GEORGE I. CHATFIELD, *General Secretary*, 49 Eton Road, Larchmont, N.Y.

• 1929 •

Surprised to find 1929 in print again? I know that I am and can bet (if some committee doesn't investigate me) that Brig Allen is relieved if not surprised himself. After artfully dodging Brig's letters, I was finally cornered by telephone and find myself an assembler of class notes. Traveling men will please pass along the news they gather so all can keep abreast of the times.

The Bridgeport, Conn., *Post* reports that T. Bailey Curran, X, who is an area supervisor for Remington Arms Company and head of the industrial engineering and chemistry and metallurgy departments of the Bridgeport Engineering Institute, recently gave a talk on "Atom Energy" in that city.

Brig Allen is district manager for Reliance Electric and Engineering Company with headquarters in Buffalo. He reports: "I was moved over here to Buffalo in November from Detroit as district manager. I make my headquarters in Buffalo but I have branch offices in Rochester and Syracuse and cover the whole state of New York with the exception of the metropolitan New York area, so I have a good deal of traveling to do. It is a very interesting territory in that practically every industry you can think about is represented here, so it gives me a great deal of variety on application work and a good opportunity to continue to learn industrial problems."

President Killian recently announced the appointment of Walter Gale, XVI, as secretary of the Institute, a newly created position. Walter is at present associate professor of Aeronautical Engineering at M.I.T. In line with the general duties of his office, Professor Gale will have administrative direction of the following offices and programs: the Development Office now established on a permanent basis, the organization and extension of the Institute's system of alumni counselors for prospective students, the Industrial Liaison Office, the News Service, the Publications Office, and the Summer Session. — PAUL F. DONAHUE, *General Secretary*, Conti and Donahue, 239 Commercial Street, Lynn, Mass.

• 1932 •

It was my privilege to attend the Victory Dinner of the Development Fund Committee in New York in May. John Lawrence, Fred Green, and George Colby were there in good health. There were two or three other classmates whose names I did not jot down. All in all it was a large evening.

Carroll Wilson has joined the Climax Molybdenum Company as director of a newly formed industrial development department. Since resigning as general manager from the Atomic Energy Commission last August, he has been engaged in consulting practice. — The employee magazine of General Aniline and Film Corporation recently featured the link between M.I.T. and their company. Charles P. Dreyer has been with Ansco since 1938 and is a project engineer on film base casting.

Robert B. Semple and Howard L. Richardson have been nominated by the Alumni Association for the positions of alumni members on the M.I.T. Corporation Visiting Committees for the Department of Chemical Engineering and the Department of Economics and Social Science, respectively. — CLARENCE M. CHASE, JR., *General Secretary*, 1424 East 7th Street, Plainfield, N.J. *Assistant Secretaries*: CARROLL L. WILSON, Cannondale, Conn.; WILLIAM A. KIRKPATRICK, Allied Paper Mills, Kalamazoo, Mich.

• 1936 •

Our President, Jack Austin, was quick to respond to your Secretary's plea last month for news quips about "The Syndicate." He reported that Tom Nelligan had just been made a vice-president and director of Albert Schwill and Company. From the same source we find that Al Musschoot is with the Link-Belt outfit in Chicago, but manages to keep pretty

scarce, even though a stones throw from Jack Austin's habitat. Tom Nelligan just bought a new house in which he was to take occupancy the first of June – thus Tom felt he could not make the reunion and sends his regrets. Wally Mathesius is now located in Ottawa, Ill., and has finally decided to give up his cloistered bachelor life. With the urgency of a new house and a honeymoon, Wally advised us that he probably would not be able to make the reunion either.

Word of fellow classmates comes from all points on the globe, even faraway places such as Japan, where a small fountain of activity seems to stem from among M.I.T. men. Just this month your Secretary received two letters, one from Tom Kato, and one from Walt Squires, neither of whom knew the other was living at such close range. Walt is doing some special project work with the Standard Vacuum Oil Company. Tom has been there since 1937, but doesn't even give a clue as to what his present activities are. Perhaps someday, in the not-too-far-distant future, both men will be able to fulfill their wish to be able to get back home again and renew old acquaintanceships from those carefree days in school which we all remember. Quite by accident, in checking over our mailing list this month, I find the name of Shigeru Kamiya, also a "Thirty-Sixer" and also taking part in Japanese activities. This bring to mind the realization that there must be many such members of our Class, who by virtue of returning to their native country, or by working situations which have taken them away from ours, were not in a position to join us this June. May we all join here and now, in extending to each and every one of them, our heartiest and warmest greetings as we remember them, even though absent from the festivities of the June reunion.

Still close to the M.I.T. campus, word from D. P. Severance'38, Secretary-Treasurer of the Alumni Association indicates that new nominations for alumni members on the M.I.T. Corporation Visiting Committees have been made. These include Louis B. Wetmore for the Department of Architecture; Donald C. Spencer for the Department of Mathematics; Franklin S. Cooper for the Department of Modern Languages.

From the American Meteorological Society of Boston, in a recent news release by Professor Houghton, a very important piece of work by another of our classmates has been brought to our attention. Bernard Vonnegut, now with the General Electric Research Laboratory in Schenectady, N.Y., has written a "Statement Concerning Legislation on Cloud Seeding." It will be remembered that last year during the severe drought in New York, this very important element of a cloud seeding technique, in an effort to exercise control over the weather, first became common knowledge among the general public. Men like Bernard Vonnegut undoubtedly pioneered in this field long before we were made conscious of the efforts researchers were making in this direction. As progress in perfecting the development of this process is made, it becomes necessary in such an important enterprise to stabilize its use through governmental control. Congratulations, Bernard, on your very excellent part in this progressive program.

Professor Robert B. Woodward, a former Quincy, Mass., scientist, and now full professor of the Harvard faculty, is another of the '36 Alumni making vast strides in the world of research and education. Professor Woodward, or Bob, as most of us know him, recently has described the first laboratory production of a complete steroid, or chemical group, containing cortisone, the miracle hormone, which has been so effective in the treatment of arthritis. To our friend Bob also goes the credit for his contributions to medicine and chemistry through his work in perfecting the first total synthesis of quinine, patulin, strychnine and other important substitutes. His work on the penicillin project with the Office of Scientific Research and Development during World War II is well known.

Paul Robbins, it seems, has been named director of fellowships for Tau Beta Pi, and executive director of the National Society of Professional Engineers in Washington, D.C. I don't think we have to add that Tau Beta Pi is a national engineering honor society, which was founded at Lehigh University in 1885, and now boasts of a membership of 68,000. Congratulations, Paul, and good luck. – ROBERT E. WORDEN, *General Secretary*, Fidelity-Philadelphia Trust Building, Philadelphia 9, Pa.

• 1938 •

We regret to announce the death of Harry Richard Seiwell, who, with his family, was killed on March 7 in a grade-crossing accident while driving in Quebec. Dr. Seiwell, who was affiliated with our Class, received his Ph.D. from Technology after graduating from the University of North Carolina. He was retired commanding officer of the 320th Antiaircraft Artillery Battalion of New Bedford National Guard and had been employed at the Oceanographic Institution at Woods Hole since 1931.

In the news are John Crichton, Ralph LeBow and Howard Milius. John has left DeGolyer and MacNaughton of Dallas to become vice-president in charge of operations of the San Juan Oil Company of Dallas. He will be in charge of leasing, drilling development and production. Ralph has joined the Parker Appliance Company of Cleveland as staff engineer for aircraft fuel system components. After leaving Technology, Ralph joined the Lawrance Aeronautical Corporation. Later, he spent three years of Naval service with the Bureau of Ships and then returned to the aviation field by joining the power plant laboratory of the Air Materiel Command at Wright Field. He has been active in aircraft fueling methods and assisted as USAF technical adviser in the first nonstop aircraft Atlantic crossing in September, 1950, a flight accomplished by several in-air refuelings utilizing a new method. *The Rainbow*, employee magazine of General Aniline and Film Corporation has presented Howard as one of the "M.I.T. people who form a strong link between the great institution on the Charles . . . and General Aniline." He joined GAF in 1947 in the new products section of the Antara division where he took part in development of CHAT, did some initial work on material for Antara's first surfactant data sheets and started the industrial field development on non-ionics. Prior to his GAF work, Howard gained a wide variety of experience in the explosives department and Graselli chemicals department of Du Pont. Earlier, he had been employed for a year in the frozen-food business.

From Brentwood, Mo., Ira Lohman writes: "Shortly before Christmas, I was in New York for a few days and had dinner one evening with Dale and Jeannie Morgan. Dale knew I was en route to Boston for a week's vacation and asked me if I'd go over and see you to give you some news for the class notes. I promised that I would and had every intention of doing it, but that week went so fast I still haven't figured out what happened. You see, my wife's home is in Waban. She hadn't been back for a couple of years, so our schedule was pretty full. It didn't bother me too much because I figured I'd write you a long letter as soon as I got back to St. Louis. Well, with the overtime work we've been putting in and my writing a thesis for a master's degree at Washington University, I haven't had much time. At the present time, we have three children: two girls, six and four, and a boy, two. I'm still with the Emerson Electric Manufacturing Company of St. Louis as head servomechanisms engineer, and we're working on airborne fire control equipment. On occasional business trips, I often run into M.I.T. men, but very seldom are they Class of '38.

"Charlie Small is also with Emerson as a contract representative and I see him a couple of times each week. John Quady'40 is with the Greenleaf Manufacturing Company here in St. Louis and at present is working on the design of a heliplane, I believe it is called. At any rate, it takes off and lands vertically like a helicopter, but flys like a conventional airplane. We sometimes run into Johnny Noyes and his wife, June, when we go square dancing. John is with the consulting engineering firm, Sverdrup and Parcel, which is designing the new Arnold Engineering Development Center for the Air Forces. John is a project engineer on the large wind-tunnel. He and June have two children, a boy seven and a girl five. At a meeting of the M.I.T. Club of St. Louis, I saw John and also, Al Mendle'39 and Fred DuBois. Al is president of American Fixture Company, manufacturers of store equipment and chrome furniture. He has two boys, six and three years old. Fred moved to St. Louis when he left Dewey and Almy in 1948, and since this time has been with Forshaw of St. Louis, jobbers and wholesalers of heating equipment. His family at the present time consists of a boy, six, and twins (a boy and a girl) four."

Harry Saunders has been active in scouting up news of the Class and finds that Clark Robinson has recovered from his broken leg. He also reports that Dick West is president of Taco West Corporation in Chicago, a firm that manufactures industrial and control instruments. Dick is a lieutenant commander in the Naval Air

Reserve, commanding a fighter squadron that is now flying jet planes. Cliff Nicholson, who received his M.S. in '38, is in the light oil manufacturing division of Standard Oil Company in Whiting. He is active in the Junior Chamber of Commerce as chairman of the youth activities committee. Lester Kornblith is with the University of Chicago's Institute of Nuclear Physics. He is active in the design of control equipment for their new cyclotron. Wenzel Wochos has been with the Elgin Watch Company for 10 years. Wensel, whose work consists of classified projects which he cannot describe, has a son, seven, and a daughter, five. Harry Saunders, who is with the Illinois Bell Telephone Company, announces a new daughter, their second child, on March 18.

We have an announcement from the Anthropological Society of Hawaii which states that Russ Coile spoke there March 28 on "A Visit to an Ainu Village." The announcement states that Russ has just returned from Japan, having made a short visit to the Ainu on Hokkaido primarily to collect music and dances. He has long been a student of folk dances. This sounds to us like a far cry from electrical engineering. Russ writes that he met Bill Whitmore in Japan. Hope Sellers writes that Phil spends his time talking into an Ediphone and has forgotten how to write. If she reads his correspondence in addition to writing it she might be interested to know that dictating machines are also useful in writing class notes. Their third son, Donald Wilson, was born on September 29, 1950. Phil is now district sales manager of Fischer and Porter Company with headquarters in the Empire State Building. From J. J. Phillips, we hear that he has successfully completed three terms at the Harvard Business School and hopes to graduate this June. He left a job with the technical service division of the Esso Standard Oil Company to go there. He says that it has been quite an experience — both frustrating and rewarding — and, he thinks, a worthwhile investment. Norm Leventhal is living in Allston and is still in the construction business. He has a family of two children, Paula, six, and Mark, two.

Fred Ray writes: "Statistics: Married landlady's daughter (a nurse) in 1940, have boy, eight, girl, five, living in Woodbury, N.J., which is a little south of Camden. Have been with Socony-Vacuum Laboratories since graduation and am assistant supervisor of the process development section of our R and D labs in Paulsboro, N.J., specializing in experimental design, pilot plant and model studies. Recent work — redesign of the Thermofor Catalytic Cracking Process with an air lift for circulating catalyst." From *Chemical and Engineering News* we find that: "Elmar V. Piel has been made a project group leader at Evans Research and Dev. Corp., N.Y. He comes from Allied Chem. and Dye Corp." Bob Robbins writes: "We here in Seattle are busy at Boeing on one of the projects underway. My particular assignment is assistant project engineer on the B-47B project — a job I've had since I decided to stop engineering test piloting in September, 1948; at that time I was project pilot on the XB-47's. In addition to Ann and myself, we have two children, Pat is almost five and Robbie is just over three.

Arch Copeland has been active in the Detroit area soliciting news for these columns. He hopes that future response is somewhat better than what he has received so far. For his own part, he writes that he is married and has two boys, Arch, 3d, and Jeffrey, ages five and two, respectively, and a daughter, Ellen, aged seven. He is a technical adviser at Revere Copper and Brass, Inc. Fred Dent who is chief, engineering division, Wright Field, was promoted to brigadier general, U.S.A.F. in January, 1950. Dave Geer, a consultant city planner, is married and has two boys. Irving Smith, a project manager with Fiberglas Corporation has one child, a boy, two and one-half. LaVerne Woerner has three children, Judith, Graham and Steven, and is general manager of the Surety Rubber Company in Carrollton, Ohio. Gordon Foote writes that he married Esther McCall in 1940, and that they have three children, a daughter Randol, nine, Tom, seven, and Roger, three. He is in the Product Service Department of Procter and Gamble. He also notes that Sam Steere is a major in the Air Corps in Tokyo. Ed Kuhn is married and works with the Sturtevant division of Westinghouse in Cincinnati. With a little assistance from Don Severance as sleuth on these replies to Arch, we find that the fellow who left Wyeth, Inc., Mason, Mich., in December to join Monsanto at Everett, Mass., as staff engineer is James Maguire. John Harvey, writing from Zionsville, Ind., notes that he is assistant terminal superintendent for the Shell Oil Company. He and his wife Ann, have a daughter Roxane. Fred Reuter is now with the Victoreen Instrument Company. Writing in January, he stated that he had three children and was expecting the fourth in May. He suspects that that just about ties the record, but there may be some who are ready to dispute this statement.

Bob Sessler is a plant engineer at Lever Brothers Company in Los Angeles, and Hains Landen is chief accountant of the Oscar Phillips Company. He is married and has three children. Scott Lyon is American Foreign Service Officer with the U. S. Department of State. He is currently assigned to the office of the U. S. High Commissioner in Germany. Walter Baldyga has been with Seagram's since he graduated. He is now well acquainted with their operations for he has been in their three big plants in Baltimore, Louisville, and Lawrenceburg, as well as in six departments: production, research, development, control laboratory, plant engineering and power. He is assistant production superintendent (distiller) and has three children, Stephanie, Amy and Paul. Bob Steel is married, has two daughters and works with the Standard Oil Company, Indiana. Dave Baker is vice-president in charge of shop operations of the Hugh J. Baker and Company in Indianapolis. He notes that he had dinner with Ed Brittenham '37 in New York in October. Dave is married and has a daughter Judy who is three years old. Dudley Levick is a plant engineer in the Ault and Widborg C and R division of Interchemical Corporation. The Levicks have three sons aged seven and three years and six months. Ciro Scalingi is director of research of the Daisy Manufacturing Company in Plymouth, Mich. He is married and has two daughters aged five and two. Saul Jacobson is vice-president of the Brunswick Balke and Collender Company in Muskegon, Mich. He is married.

From the address change notices of the Alumni Register, we find that Bernard Lement is now with the M.I.T.'s Department of Metallurgy, Stanley Gaynor with the Harvard Bazar in Cambridge, Francis Buffington with the California Institute of Technology in the engineering division, and Lieutenant Colonel Willard Roper is at Fort Logan in Colorado. Don Severance tells us that Frank Wardwell has been elected secretary of the M.I.T. Club of Kentucky in Louisville and Gordon Foote has just been elected vice-president of the M.I.T. Club of Cincinnati. Don also reports a visit from Bill Whitmore who has worked in Washington since 1946 in the Operations Evaluation Group of the Navy, being concerned principally with guided missiles. He frequently sees Russ Coile. He married Elizabeth Arnold, Vassar'37, University of California'41, who is a mathematician in the Department of Defense. They have two sons, Charles S., born in February, 1949, and Edward K., in October, 1950. Ned Bossange married Elizabeth's sister Evy. Ned plans to spend the next three years as maintenance superintendent for Avianca Columbia, being on loan from Pan American. — ALBERT O. WILSON, JR., *General Secretary*, 24 Bennington Road, Lexington 73, Mass. *Assistant Secretaries*: RICHARD MUTHER, Methods Engineering Council, 718 Wallace Avenue, Pittsburgh 21, Pa.; DAVID E. ACKER, 210 Woburn Street, Lexington 73, Mass.

• 1939 •

After a long absence from these columns, we are pleased to receive word again from "E.K." Smith and offer congratulations in addition on the occasion of his marriage to Nancy M. Ferris of Media, Pa.; Pete deFlorez was the best man.

Our only other news converns speaking engagements by Kenneth Cook and Walter Wachter. Ken was one of the principal speakers at a meeting of the Society of Exploitation Geophysicists in St. Louis, Mo. He presented a paper entitled, "Regional Gravity Survey of Northeastern Oklahoma and Southeastern Kansas." Ken is presently working as a geophysicist for the United States Bureau of Mines.

Walt spoke to the Town Planning Committee of Ridgefield, Conn., on their traffic problems. He has been employed by the State Park and Development Commission in New Hampshire, the Regional Plan Association of the metropolitan area, and has developed planning programs for Stamford, Greenwich and White Plains, N.Y.

Trusting the summer months will furnish all with the desire of sending more news in for the column — even vacation post cards would be most welcome — to: STUART PAIGE, *General Secretary*, 701 Mill Plain Road, Fairfield, Conn. *Assistant*

Secretaries: GEORGE BEESLEY, Whittemore-Wright Company, Inc., 62 Alford Street, Charlestown 29, Mass.; MICHAEL V. HERASIMCHUCK, Post Office Box 495, Bethlehem, Pa.

• 1940 •

Received a nice newsy letter from Harlan Davis which is being reproduced almost in its entirety: "I like to read the class notes and I should help to create them. (It would be nice if other classmates became imbued with this idea). Anyway, I'm going off the deep end and my fiancée wants to see her name in print, so here it is. BARBARA ANN RENNICKE of Route 2, Downers Grove, Ill., obtained an engagement ring from the undersigned while the two of them were driving east on the Midway (on Chicago's great south side and in front of the University of Chicago) on December 23, 1950, in the late afternoon. We darn near ran into a tree! Barb is a graduate dietician, University of Colorado and internship at Cincinnati General Hospital, and is currently earning and saving enough money so we can get married by working on a WENR-TV homemaking show where she is the chief cook and bottle washer; i.e., dietician. We expect to tie the knot in September.

"As for your correspondent, he has had a merry life since June, 1940 with frequent returns to Boston and numerous contacts with class and schoolmates in Washington, D.C., Boston and Chicago during four years in civilian life, then almost three years with Luis de Florez, M.I.T. '11, in the Navy in Washington, and since those halcyon days back in civilian life. Currently, I am district manager for our firm, Precision Rubber Products Corporation, here in Chicago and range over Iowa and Illinois and parts of Nebraska, Indiana and Kentucky selling "O" rings. For those who, like myself a few short years ago, wonder what an "O" ring is, let me describe it as a torus shaped seal or gasket, useful in both static and dynamic applications, made from any of the natural or synthetic polymers of rubber (or from a blend), and used to seal any non corrosive (to rubber) fluid at temperatures from —120°F. to +500°F., and at pressures up to and including (to my knowledge) 65,000 psi. It's very interesting work and, in view of the current inflationary trend, we are very busy. — Bill Schuler, our swimming team captain, has also been a bachelor these many years until one Friday in March, 1951, he presented his beloved with a diamond. He and Maxine Sparks planned to wed on May 19, 1951."

In addition to Harlan and Bill, congratulations are also in order for Ed Colson who became engaged to Dorothy Prescott Foss in April. Bob Millar has been elected president of Tracerlab, Inc., of Boston. This is the final step up the ladder for Bob who was formerly vice-president and general manager. Charles Stokes was moderator of the panel discussion at a management conference held by the Boston section of the American Institute of Chemical Engineers last April.

That about winds up the '40 column until next fall. Don't forget to write to me during the summer, however, so we can start the next volume of The Review with a bang-up column. And don't forget your class dues. The May issue had a typo error that made the five-year rate a mere ten times the one-year fee. For those who forgot the stipend, it's 50 cents a year or $2.50 for five years. — ALVIN GUTTAG, *General Secretary*, 7114 Marion Lane, Bethesda 14, Md. MARSHALL D. MCCUEN, *Assistant Secretary*, Oldsmobile Division, General Motors Corporation, Lansing 21, Mich.

• 1941 •

Well the 10th reunion has come and gone. Unfortunately, the scheduling of this column publication does not permit us to give you a summary of the activities and the highlights on class personalities at this time. But future issues will be devoted to the subject, and we hope that the statistics made available during the Lenox get-together will furnish your Secretary with over-ample raw materials for several months. For the time being, however, let us go back and clean up some old news. From Ivor Collins: "Bill Fox is living at Towson, Md., visited his folks recently and all is well. Carl Aronsen was still in New York at last writing; he spent a week end with us last summer while his wife was in Oregon. Gardner Ketchum is still with G.E. in Schenectady; saw him at the A.S.M.E. convention in New York City last fall." Last time, we mentioned that Ivor and his Mrs. had just welcomed an addition to the Lynn branch of the Collins family. Born to Charlotte and Will Mott on March 25, Karen Douglas; congratulations. Ann Lavery became Mrs. Jim Tyson (of the Armour Research Foundation), last January.

We regret that this column does not carry photographs and figures, for we should like to have reproduced the model pictured in the April 4 Boston *Post* entitled, "Always Something New Under the Sun," with subcaption "Mario Conti, well-known American designer who is a graduate of . . . Technology, '41 presents his version of a Paris-New York hands-across-the-sea new bolero suit, done in charcoal gray, which buttons onto the halter neckline of this sun-back dress. Note the large straw hat and the long white gloves worn with push-up sleeves. This ensemble is available in a Boston store." And so the page-long column goes. So when the Mrs. wants to know what an M.I.T. man knows about dresses and women's styles, your reference can be the *Post*.

At the other end of the world and with a different headline, we have an item about "Flying to Pole Is Routine Job for Yank Pilots, They Make Trip Every Two Days." The article describes the flight made by a B-29 every other day from the Eielson Air Force Base in Alaska to the North Pole for the purpose of obtaining weather information. Lieutenant Colonel Joseph Fletcher, who completed his meteorology at the Institute in '41, is commander of the squadron. Fletcher usually assigns himself one polar trip a month, as copilot. At the other end where such information is utilized in long-range forecasting, Jerome Namias, who also finished his meteorology studies in '41, is busy lecturing to universities on the possibilities of really long-range predictions. Namias concedes that current extended accurate forecasts are limited to 30 days, but he adds: "I am just enough of an optimist about this business to believe that our generation will yet see annual and even decade forecasting." Come to think of it we should have checked with Namias on reunion weather conditions.

Finally, we have in hand a very interesting statement made by Wallace Howell before the joint U.S. Senate hearing on weather control. Howell, who you will recall acted as a consultant to the city of New York during its critical water-shortage emergency, urged the committee to sponsor legislation supporting methodical investigation and research on artificial influences on weather. Howell's reasons for advocating Federal action were: "The potential value to the nation of even a small degree of control over weather is enormous; full investigation of the questions both of underlying scientific principles and of practical application will require broad, coordinated effort which no other agency is now prepared to exert; finally, the experimentation requires some regulation of individual activities and orderly disposition of liabilities on a national scale. . . . legislation should be framed and the investigation planned to take advantage of the efforts already being exerted in these directions and the organizations and facilities in and out of the government, already available to further them." Howell went on to cite the need for regulation in the public interest of activities for weather modification. He then discussed the question of damages, of indemnification for people or interests harmed, pointing out that: "There is no precedent to which the common law can turn, even in riparian rights, for atmospheric rivers do not flow between fixed banks, and the lines cannot be drawn clearly between fortuitous and humanly caused weather occurrences." Finally Howell pointed out: "Weather, of course, is no respecter of political boundaries — county, state, or national. Whatever the nature of the legislation, it should provide ultimately not only for interstate but also international cooperation." Forty-one and the weather! — STANLEY BACKER, *General Secretary*, 335 A Harvard Street, Cambridge, Mass. JOHAN M. ANDERSEN, *Assistant Secretary*, Saddle Hill Farm, Hopkinton, Mass.

• 1942 •

A pleasant letter from Charlie Ruckstuhl relates that he and his recent bride, the former Muriel Moison, left immediately after their wedding for Germany, where Charlie is participating in the establishment of a station for Radio Free Europe, one of the enterprises of the National Committee for a Free Europe. Charlie is assistant technical director and is working harder than he ever did at Technology. Before this assignment, Charlie had been in the United States only six months since an extended stay in South America where he set up outlets for the Bendix Aviation Corporation's ultrasonic fish detector.

According to the Brockton press, Rob-

ert Staff, now a physician and a lieutenant commander in the United States Public Health Service, has been assigned to the government hospital at Sitka, Alaska. Bill Seaton is now a captain in the Air Forces and is chief of the resources section, Northeastern Air Procurement District.

Recent marriages include: John Senior to Susan Cable, Helen Foster to William Watkins, and Mary Dale Robinson to Charles Ricker. Luther Davis has become engaged to Joanne Wilder of Melrose; Peter Sloss to Anne Thom of Chicago, and Morris Steinberg to Natlee Jean Haass of Cleveland. — GEORGE M. KAVANAGH, *Acting Secretary*, 25 Eaton Court, Wellesley Hills 82, Mass. KARL E. WENK, JR., *Assistant Secretary*, 11 Ledge Road, Old Greenwich, Conn.

• 1948 •

'Tis been said that "all's fair in love and war"; well, if such be the case, "all's fair" with most of your classmates, for more and more men seem to be getting involved with one or the other — or both. A letter was received from Norm Shillman, who is now stationed at the United States Naval Indoctrination School at Monterey, Calif. Ensign Norm is now serving Uncle Sam for the second time . . . "but at least I've got a stripe this time. There are some other M.I.T. boys here including Andres, Toohy, and Twomey. There may be still others, but not to my knowledge. We're here for eight weeks' indoctrination school and then off to the fleet we go. Aside from the study time we put in, we have a few golf courses, a swimming pool, bar, and the Pacific Ocean on the premises to spend our time on. Besides the sunny California weather, Ive been told there are some beautiful women in the vicinity. We're billeted here in the Del Monte Hotel — and we're a handful out of about 280." So this is war!.

Private Ed Hobaica, who was previously employed in automotive paint research, is now stationed at Luke Air Force Base near Phoenix, Ariz. He enlisted in the Michigan Air National Guard and went on active duty when his unit was called into service. Bob Ginivan, a lieutenant in the Army, has recently been transferred to the USA Research and Development Station at Fort Eustice, Virginia, where he will work on transportation problems. Bob is a member of the Committee on Supervisory Development of the American Transit Association and is also an associate director of the National Association of Cost Accountants.

Good news may travel fast but not when it is transmitted from your home town newspaper via a clipping service to M.I.T.; hence, to your Secretary and then back again for inclusion in your class notes. So if some of these announcements are a bit late, and engagements are now weddings, please accept our apologies and, of course, our congratulations.

James Theodosopoulos, currently employed as a plant chemist by Textron, became engaged in March to Pearl Mamigonian; Jack Walter to Jean Carol Davis; John MacCallum, an electronics engineer for Hazeltine Electronics Corporation in Little Neck, to Eleanor Chesbucke; and Barrett O'Neill, still at M.I.T. on an Atomic Energy Fellowship, to Hope Franklin, a Radcliffe senior. Dan Fink, too, we learn, has long since been engaged to Tobie Weiss; Milton Pohl to Jane Goodman; and John Gilchrist, now in his third year at New York University College of Medicine, to Joan Miller. The clipping service notifies us also of Ronald Kallman's impending marriage to Phyllis Reed. Ronald has been a research assistant at Philco and is administrative assistant to the director of the Research Laboratory of Electronics at Technology. In his spare time, he apparently has been doing a bit of studying, too, for he was to have been graduated from the Harvard Business School in June. Two last engagement notices concern those of Thomas Faria, a time study engineer at the New Departure Company, to Carolyn Stannard; and of Bob Auty to Beatrice Powers. Upon receipt of his doctorate from Brown University in June, Bob was planning to join the Dow Chemical Company in Midland, Mich.

A letter received from Marshall Dick brings the glad tidings of his marriage on March 22 to Carolyn Wilkins of Silver Springs, Md. Carolyn is a student nurse at Johns Hopkins Hospital and Marshall is employed as a shift supervisor in the Specialty Catalyst Plant of the Davison Chemical Company. On May 12, Thornton Smith and Shirley Wakelee were wed in Maplewood, N.J. Thornton, who has also received his degree from the Harvard Business School, is with Fraser, Brace, and Company, engineers, in New York. Ed Hanley was wed early this year to Mary Williams, a former member of the library staff at Technology, and the couple are now residing at 1535 Newport Street, Denver, Colo.; and, in their own words, "the latch string is always out."

Paul Anderson very thoughtfully dropped your Secretary a card to say that this Course XV man is now embarking upon a new career — banking. The first of the year he moved back to Jamestown, N.Y., his home town, to go with the Bank of Jamestown. Two other brief occupational notes received during the past month concern Dave Winter, who was promoted in April to associate professor of electrical engineering at Washington University in St. Louis; and Bob Mattheson, who has recently moved with his wife and two sons to Cincinnati, Ohio, to take up an engineering position at General Electric's new plant in Lakeland, Ohio.

Why not resolve now to write, just a note if need be, to your Class Secretary sometime during the summer? Your classmates are interested in you, as you are in them; and through the medium of these class notes we can keep in touch with one another, so what about it? — WILLIAM R. ZIMMERMAN, *General Secretary*, 1604 Belmar Road, Cleveland Heights, Ohio. RICHARD H. HARRIS, *Assistant Secretary*, Lovell Road, Holden, Mass.

• 1949 •

Spring means graduation and graduation means "to work" for yours truly and a number of other '49 men who have spent the last two years at the Harvard Business School. Paul Watkins is going with Hercules Powder in Parlin, N.J. George Loomis has decided on Reliance Electric and Engineering in Cleveland, Ohio. Rus Cox has joined Macomber Company of Boston (construction). Kemon Taschioglou has been summoned by Harry — into the Air Forces. Milt Bevington is going with Dewey and Almy in Acton, Mass. Otto Kirchner is off to Seattle with Boeing Aircraft. I have decided to head for San Francisco and look for a job once I arrive. Bob Nesbitt has decided to team up with Lou Peloubet, who has just left Johns-Manville, and head for Florida to go into business for themselves. Brad Endicott has decided on Sears Roebuck in Chicago. Brad has developed into an international personality these past two years. During the Christmas vacation of 1949, he visited Finland. The past summer he spent in Pakistan, and during his 1950 Christmas vacation he traveled to Norway. This summer Brad plans on attending the congress of the International Chamber of Commerce in Lisbon, Portugal. The remainder of the summer he plans on visiting Denmark.

I apologize, Dave. On September 16, 1950, young David Gaillard appeared; looks just like the old man, too. Also learned from Pop Dave that Bill Mitchell has received a leave of absence from Reliance Electric to enter the service. Ike Lee is on Guam as a civilian, testing radar equipment for the Navy. Jack Stevens has just purchased a home in Coopersburg, Pa., and has gone into home farming in his spare time. From Rus Cox we learned that Archie Harris is a foreman in a Chevrolet assembly plant in Cincinnati, Ohio. Also learned that Larry Holt is with the Trane Company in Boston. Earl Eames, Vice-president of Consultants, Inc., has been made the acting Danish Consul in Boston. Frank Coy is working at the Naval Torpedo Station in Newport, R.I.

ENGAGEMENTS: Richard Allen to Barbara Fifield of Newport, Vt. Dick is presently with Hamilton Standard Propellers, division of United Aircraft. Helen Wenetsky to Robert Cohen, Harvard College and Business School.

WEDDINGS: Nancy Curtis to Jack Krashaar, Lafayette College on April 7 in Orange, N.J. J. Stoness Harford to Dora Seavey on April 19 in Wollaston, Mass. Donald Thomas to Doris Monckton on April 14 in Bristol, Conn. — CHARLES WILLETT HOLZWARTH, *General Secretary*, Goodale Circle, Edgebrook, New Brunswick, N.J.

The Review is not published during the summer months following July. Issue Number 1 of Volume 54 will be published on October 27 and dated November. An index to Volume 53 will be ready on September 30 and mailed upon request.

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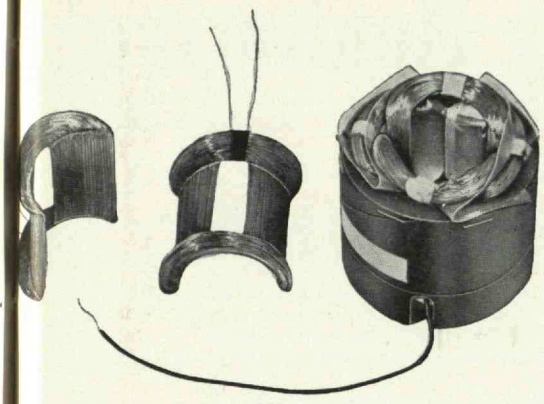

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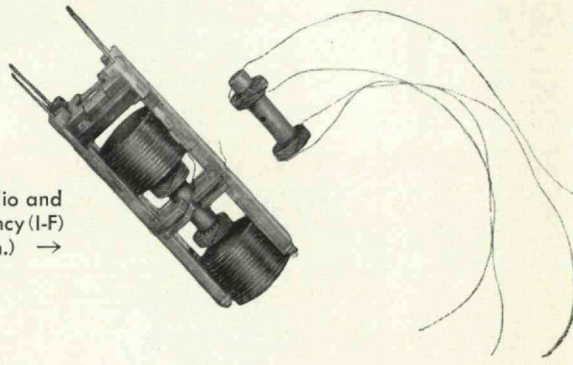

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